NEC

NEC Express5800/BladeServer Series

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NEC Express5800/B140a-T
User's Guide

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Keep this User's Guide at hand for quick reference at anytime necessary.

SAFETY INDICATIONS

Follow the instructions in this User's Guide for your safety to use the server.

The server contains components with possible danger, hazards that may cause by ignoring warnings, and preventive actions against such hazards.

Server components with possible danger are indicated with a warning label placed on or around them as well as described in this User's Guide.

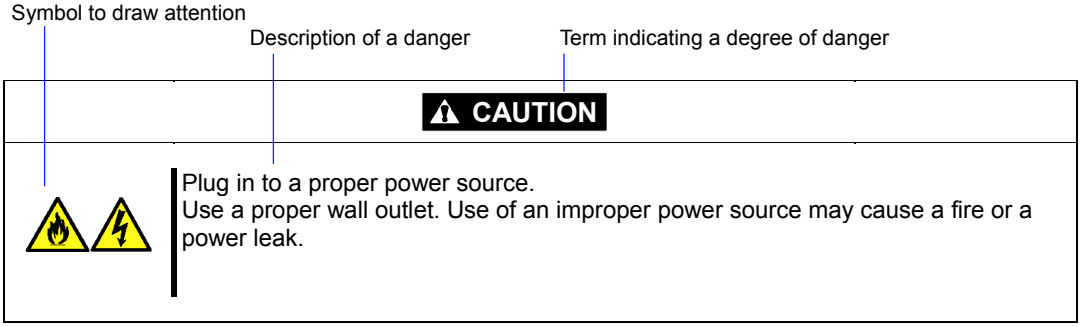
In the User's Guide or warning labels, "WARNING" or "CAUTION" is used to indicate a degree of danger. These terms are defined as follows:

⚠ WARNING	Indicates the presence of a hazard that may result in death or serious personal injury if the instruction is ignored.
⚠ CAUTION	Indicates the presence of a hazard that may cause minor personal injury, including burns, or property damage if the instruction is ignored.

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:

	This symbol indicates the presence of a hazard if the instruction is ignored. An image in the symbol illustrates the hazard type. (Attention)
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)

(Example)
(Example)


Symbol to draw attention
Description of a danger
Term indicating a degree of danger
⚠ CAUTION
Plug in to a proper power source.
Use a proper wall outlet. Use of an improper power source may cause a fire or a power leak.

Symbols used in this User's Guide and warning labels are listed below.

Attentions

	Indicates that improper use may cause an electric shock.
	Indicates that improper use may cause fumes or fire.
	Indicates that improper use may cause fingers to be caught.
	Indicates that improper use may cause personal injury by the moving fan blades.
	Indicates that improper use may cause personal injury.
	Indicates that improper use may cause explosion.
	Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Do not disassemble, repair, or modify the server. Otherwise, an electric shock or fire may be caused.
	Do not touch any component other than specified. Otherwise, an electric shock or personal injury such as burns may be caused.
	Keep away from fire. Otherwise, an ignition may be caused.
	Keep away from water or liquid. Otherwise, an electric shock or fire may be caused.
	Indicates a general prohibited action that cannot be specifically identified.

Mandatory Action

	Unplug the power cord of the server. Otherwise, an electric shock or fire may be caused.
	Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

BSMI Statement

警告使用者：

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Momentary voltage drop prevention:

This product may be affected by a momentary voltage drop caused by lightning. To prevent a momentary voltage drop, an AC uninterruptible power supply (UPS) unit should be used.

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PREFACE

Welcome to the NEC Express5800/BladeServer series server.

The NEC Express5800/BladeServer holds powerful performance and employs the latest technology to implement a computer for the next generation. With its potential capabilities, the server may be used as the workstation PC that configures a client-server system and provides high-speed processing and superior reliability.

Read this User's Guide thoroughly to fully understand handling of the server and appreciate its functions to the maximum extent.

ABOUT THIS USER'S GUIDE

This User's Guide is a guide for proper setup and use of the server.

This User's Guide also covers useful procedures for dealing with difficulties and problems that may arise during setup or operation of the server.

Keep this manual for future use.

The following describes how to proceed with this User's Guide.

How to Use This User's Guide

To aid you in finding information quickly, this User's Guide contains the following information:

Chapter 1 Notes on Using Your Server
includes information that needs attention to use the CPU blade. Make sure to read this chapter before setting up and using the CPU blade. It also includes requirements and advisory information for transfer and disposal of the CPU blade.

Chapter 2 General Description
includes information necessary to use the CPU blade, such as names and functions of its components.

Chapter 3 Setting Up Your Server
tells you how to select a site, unpack the system, make cable connections, and power on your system.

Chapter 4 Configuring Your Server
tells you how to configure the system and provides instructions for running the BIOS Setup Utility and the RAID Configuration Utility, which is used to configure RAID drive in your system.

Chapter 5 Installing the Operating System
describes how to install the operating system.

Chapter 6 Installing and Using Utilities
describes how to install the utilities for the server. It also includes a description on using the attached "NEC EXPRESSBUILDER" DVD.

Chapter 7 Maintenance
provides you with all the information necessary to maintain successful operation of the CPU blade.

Chapter 8 Troubleshooting
contains helpful information for solving problems that might occur with your system.

Chapter 9 Upgrading Your Server
provides you with instructions for upgrading your system with an additional processor, optional memory, optional mezzanine cards, and hard disk drives.

Appendix A Specification
provides specifications for your CPU blade.

Appendix B Installing the Operating System
describes how to install Microsoft Windows Server 2003 x64 Editions and Windows Server 2003 without using Express Setup.

Text Conventions

The following conventions are used throughout this User's Guide. For safety symbols, see "SAFETY INDICATIONS" provided earlier.

IMPORTANT:	Items that are mandatory or require attention when using the server
NOTE:	Helpful and convenient piece of information

IN THE PACKAGE

The carton contains various accessories, as well as the server itself. See the packing list to make sure that you have everything and that individual components are not damaged. If you find any component missing or damaged, contact your service representative.

- Store the provided accessories in a designated place for your convenience. You will need them to install an optional device or troubleshoot the server, as well as to set it up.
- Make a backup copy of each provided floppy disk, if any. Store the original disk as the master disk in a designated place, and use its copy.
- Improper use of any provided floppy disk or DVD/CD-ROM may alter your system environment. If you find anything unclear, immediately ask your service representative for help.

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Chapter 1

Notes on Using Your Server

This chapter includes information necessary for proper and safe operation of the server.

SAFETY NOTES

This section provides notes on using the server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, see "SAFETY INDICATIONS" provided earlier.

For part names described in the safety instruction chapter in this guide, refer to "Features and Controls" in Chapter 2.

WARNING

Do not use the server for services where critical high availability may directly affect human lives.

The server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. NEC assumes no liability for any accident resulting in personal injury, death, or property damage if the server has been used in the above conditions.

Do not disassemble, repair, or alter the server.

Never attempt to disassemble, repair, or alter the server on any occasion other than described in this User's Guide. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the server.

Do not remove the battery.

Your server contains the lithium and NiMH (or Li-Ion) batteries. Do not remove the battery. Danger of explosion if the battery is incorrectly replaced. Placing the battery close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the dead batteries, contact your service representative to replace the battery. Do not disassemble the server to replace or recharge the battery by yourself.

Do not use the server if any smoke, odor, or noise is present.

If smoke, odor, or noise is present, immediately turn off the system and disconnect the power plug from the outlet, then contact your service representative. Using the server in such conditions may cause a fire.

Keep needles or metal objects away from the server.

Do not insert needles or metal objects into ventilation holes in the server. Doing so may cause an electric shock.

Use the devices only in the specified areas.

CPU blades and hard disk drives should be installed in the dedicated Blade Enclosure for their uses. Do not install the CPU blades and hard disk drives in a chassis other than the Blade Enclosure. Failure to follow it may result in fire and/or electric shock to occur.

⚠ WARNING

Do not use the equipment in the place where corrosive gases exist.

Make sure not to locate or use the server in the place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist.
Also, do not set it in the environment where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals. There is a risk of a fire due to corrosion and shorts of an internal printed board.

Do not handle the CPU blade if it is installed in the Blade Enclosure.

To install or remove an option from the CPU blade, first turn off the power of the CPU blade and remove the CPU blade from the Blade Enclosure. If you touch parts on the CPU blade with it connected to the Blade Enclosure, you may get an electric shock.

Do not install or remove more than one CPU blade at a time.

Install or remove CPU blades one by one. If you install or remove more than one CPU blade at a time or a CPU blade with the cover of another slot removed, you may be electrically shocked.

⚠ CAUTION

Keep water or foreign matter away from the CPU blade.

Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the server. Failure to follow this warning may cause an electric shock, a fire, or a failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the server. Contact your service representative.

Make sure to complete device installation.

Always install a CPU blade, hard disk drive and board firmly. An incompletely installed device may cause a contact failure, resulting in smoking or fire.

Do not use any unauthorized interface cable.

Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an authorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.
Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the Blade Enclosure with loose cable connections.
- Do not use any damaged cable.

CAUTION

Avoid installation in extreme temperature conditions.

Immediately after the server is powered off, its internal components such as hard disk drives are very hot. Leave the server until its internal components fully cool down before installing/removing any component.

Avoid contact with the server during thunderstorms.

Disconnect the power plug from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the power plug, do not touch any part of the server including the cables. Failure to follow this warning may cause a fire or an electric shock.

Keep animals away from the server.

Pet's discharges or fur may enter the CPU blade and cause a fire or electric shock.

Do not use a cellular phone or pager around the server.

Turn off the cellular phone or pager. Radio interference may cause malfunctions of the server.

FOR PROPER OPERATION

Observe the following notes for successful operation of the server. Use of the server ignoring the notes will cause malfunctions or failures of the server.

- CPU blade
  - The CPU blade assembly must be installed in the Blade Enclosure (SIGMABLADE).
  - Install or remove CPU blades one by one.
  - Hold the portions covered with metal plates when a CPU blade is installed or removed. To carry a CPU blade, put it into the case in which the CPU blade was contained at the purchase and pack it into the package.
  - The CPU blade is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the CPU blade. Do not touch the CPU blade terminals or on-board parts by a bare hand and place the CPU blade directly on the desk.
  - Check and adjust the system clock before the operation if any of the following conditions is applicable.
    - After carriage of device
    - After storage of device
    - After the device is entered into the pause state under the environmental condition enduring device operation (temperature: 10 to 35°C, humidity: 20 to 80%)

    Check the system clock at the rough rate of once per month. When the system clock is installed in a system requiring high time precision, it is recommended to use a time server (NTP server).
    If the system clock is remarkably delayed or advanced as the passage of time in spite of adjustment, contact your service representative to ask maintenance.
  - Store the unit under the storage condition (temperature: –10 to 55°C, humidity: 20 to 80%, without condensation) to allow built-in devices and the unit to operate correctly in the next operation.
  - Before turning off the power of a CPU blade, shut down the CPU blade correctly.
  - After turning off the power of a CPU blade once, turn on the power again after 30 seconds have passed from the power-off.
  - Remove a CPU blade after turning off the power of the CPU blade.
  - Turn on the power of each CPU blade by the use of the POWER switch or the remote power-on after the period of 30 seconds or longer has passed from the supply of AC power (the POWER lamp of the CPU blade goes on amber) to every power unit. The power of the CPU blade may not be turned on if the power-on operation is done within the period of less than 30 seconds from the supply of AC power. After making sure that the AC power is supplied to every power unit, turn on the power of each CPU blade by using the POWER switch.

  - The CPU blade contains precision component that is easily affected by drastic temperature change. If the CPU blade is used after storage or relocation, make sure that the CPU blade is fully adapted to the operating environment.
  - Do not perform any of the following operation during POST (including similar operations from EM card and external applications).
    - Press the POWER switch of the CPU blade.
    - Press the RESET switch of the CPU blade.
    - Remove the CPU blade from the Blade Enclosure.
    - Disconnect the power cord from the power unit of the Blade Enclosure.
- Hard disk drive
  - The hard disk drive to be used should be NEC-specified options for blade server.
- Optional memory, processor, hard disk drive, mezzanine card, and other electronic components
  - These components are extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the components. Do not touch the terminals or parts on the components by a bare hand and place the components directly on the desk.
  - Make sure that the options are NEC-specified optional devices for the blade server. If an option can be installed or connected to the server, the option may not operate properly and further the server itself may be defected. If such an option causes the server to be defected or damaged, you will be charged for the repair within the warranty period.
  - Do not give excess shocks or vibrations to the hard disk drive. Failure to follow it may cause the hard disk drive to be defected.
  - The internal option device contains precision component that is easily affected by drastic temperature change. If the device is used after storage or relocation, make sure that the device is fully adapted to the operating environment.
- Turn off the cellular phone or pager. Radio interference may cause malfunctions of the server.

TRANSFER TO THIRD PARTY

The following must be observed when you transfer (or sell) the server or software provided with the server to a third party:

Server

Make sure to provide this manual along with the server to a third party.

IMPORTANT: About data on the hard disk drive

Be sure to take appropriate measures not to leak important data (e.g., customers' information or companies' management information) on the removed hard disk drive to any third parties.

Data seems to be erased when you empty "Recycle Bin" of Windows or execute the "format" command of the operating system. However, the actual data remains written on the hard disk drive. Data not erased completely may be restored by special software and used for unexpected purposes.

It is strongly recommended that the software or service (both available at stores) for data erasure should be used in order to avoid the trouble explained above. For details on data erasure, ask your sales representative.

Provided Software

To transfer or sell any software application that comes with the server to a third party, the following requirements must be satisfied:

- All provided software applications must be transferred and no backup copies must be retained.
- Transfer requirements listed in "Software License Agreement" that comes with each software application must be satisfied.
- Software applications that are not approved for transfer must be uninstalled before transferring the server.

DISPOSAL AND CONSUMABLES

- Dispose of the CPU blade, hard disk drives, Blade Enclosure, option board, floppy disks, and DVD/CD-ROMs according to all national laws and regulations.

IMPORTANT:

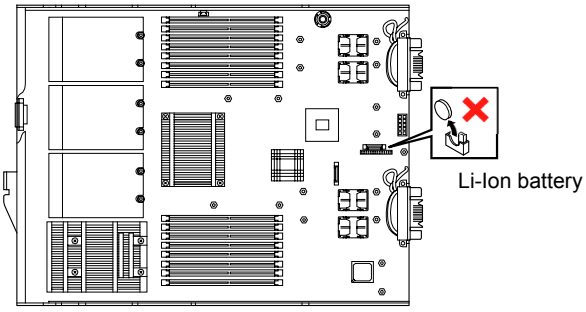
- For disposal (or replacement) of the battery on the mother board of the server, consult with your service representative.
- It is the user's responsibility to completely erase or modify all the data stored in storage device such as hard disk drive so that the data cannot be restored.

- The server contains some components that are only good for a limited period of time and require replacement (e.g., lithium, Li-Ion, or NiMH battery). For stable operation of the server, NEC recommends you replace these components on a regular basis. Consult with your service representative for replacement or the product lives.

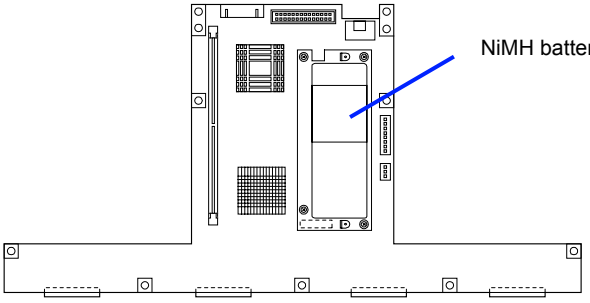
WARNING

Do not remove the battery.

The server contains the lithium and NiMH (or Li-Ion) batteries. Do not remove the battery. Placing the battery close to a fire or in the water may cause an explosion.
For the location of battery on the option board, refer to the manual that comes with the option board.



CPU unit



SAS board

USER SUPPORT

Before Asking for Repair, do the following when the server appears to fail:

1. Check if the power cord and the cables to other devices are properly connected.
2. See Chapter 8 to find if your problem fits the description. If it does, take the recommended measure for it.
3. Check if the software required for operation of the server is properly installed.

If the server still appears to fail after you have taken the above actions, consult with your service representative immediately. Take notes on lamp indications of the server and alarm indications on the display unit before consultation, which may provide a significant help to your service representative.

Advice for Health

The longer you keep using the computer equipment, the more you become tired, which may cause disorders of your body. When you use a computer, observe the following to keep yourself from getting tired:

Good Working Posture

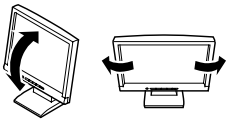
You have good posture if the following are satisfied when you use a computer:

- You sit on a chair with your back straight.
- Your hands are parallel with the floor when you put them on the keyboard.
- You look at the screen slightly lower than your eye height.

You have "good working posture" as described in the above when no part of your body is under excess strain, in other words when your muscles are most relaxed.

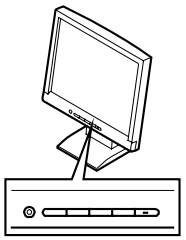
You have "bad posture" when you sit with your back hunched up or you operate a display unit with your face close to the screen. Bad working posture may cause eye strain or poor eyesight.

Adjustment of Display Unit Angles



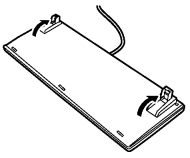
Most display units are designed for adjustment of the horizontal and vertical angles. This adjustment is important to prevent the screen from reflecting bright lights and to make the display contents easy to see. You will not be able to keep "good working posture" and you will feel more tired than you should if you operate a display unit without adjusting horizontal and vertical angles.

Adjustment of Screen Brightness and Contrast

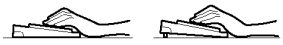


The display unit has brightness and contrast adjustment functions. The most suitable brightness and contrast depend on the individual and the working environment (well-lighted room or insufficient light). Adjust brightness and contrast so that the screen will be easy to see. An extremely bright or dark screen will give a bad effect to your eyes.

Adjustment of Keyboard Angle



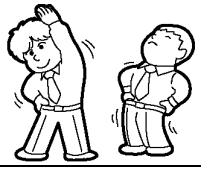
The keyboard provided with the server is designed for adjustment of an angle. Adjust the keyboard angle at which the keyboard is easy to operate. The adjustment assists in reducing strain on your shoulders, arms, and fingers.



Cleaning of Equipment

Clean equipment regularly. It is difficult to see the display contents on a dusty screen. Keeping equipment clean is also important for your sight.

Fatigue and Rest



If you feel tired, you should stop working and do light exercises.

Chapter 2

General Description

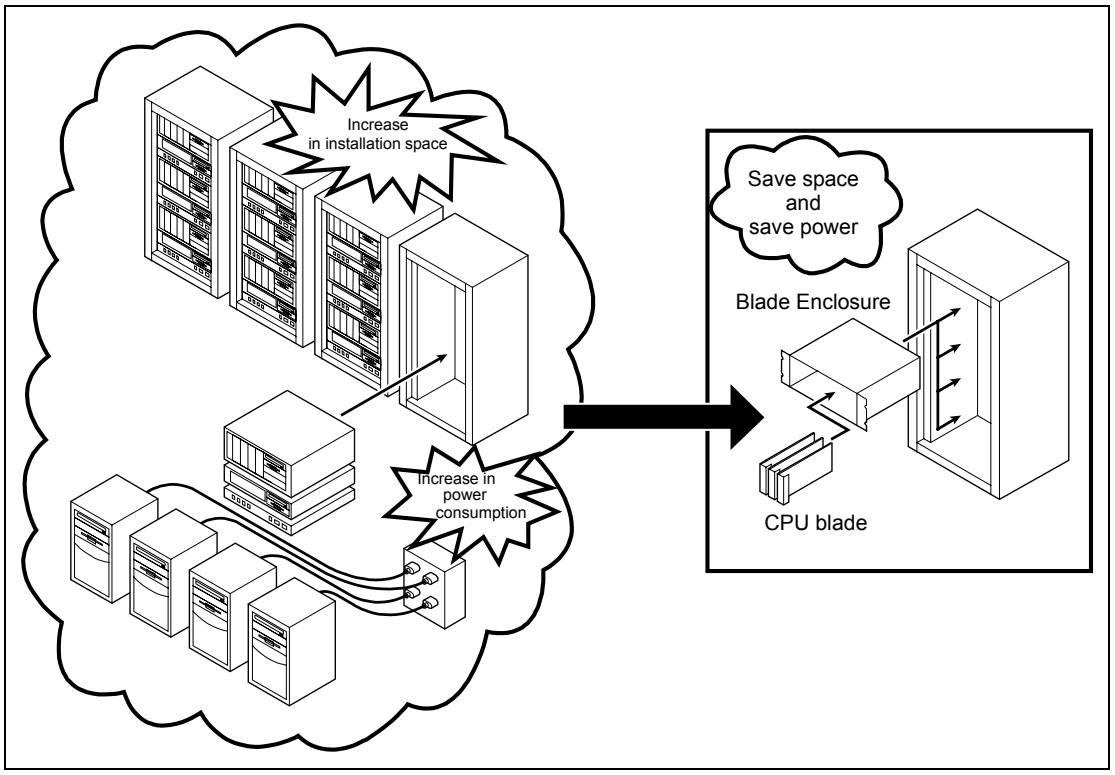
This chapter provides information that you should be familiar with before using the server. It includes names and functions of the components and features of the server.

OVERVIEW

BladeServer is a modular and multiprocessing system that includes processor, memory, network connections, optional add-in card slot, and associated electronics, all on a single mother board called a CPU blade.

The CPU blade, hard disk drive, and other CPU blades are typically installed into a rack-mountable enclosure that houses multiple CPU blades that share common resources such as cabling, power supplies, and cooling fans.

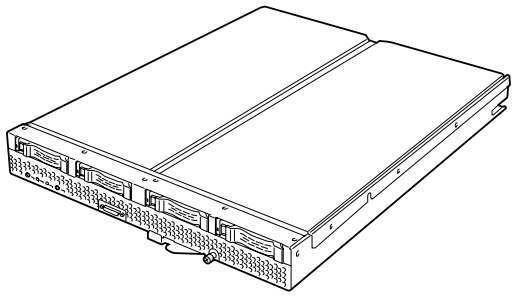
This high-density technology reduces the installation space, lowers a total cost of ownership, and offers increased computing density while ensuring both maximum scalability and ease of management.



STANDARD FEATURES

High performance

- Intel® Xeon® Processor 7400s, 7300s, or 7200s
- DDR2-667 SDRAM FB-DIMM
- High-speed 1000BASE-T interface x4 (1Gbps supported)
- High-speed disk access (SAS)



Management Utilities

- NEC ESMPRO
- NEC DianaScope
- Remote monitoring feature (EXPRESSSCOPE engine)

Maintenance Features

- Off-line Maintenance Utility
- Memory dump feature using the DUMP switch

Expandability

- Four mezzanine card slots
- Large memory of up to 64GB
- Up to four multi-processors are available for upgrade.
- Four network ports
- Up to four hard disk drives (SAS 2.5-inch) per CPU blade
- Two USB (Ver 2.0) interface ports

High-reliability

- Memory mirroring feature
- Online spare memory
- Memory monitoring feature (correction of correctable error/detection of uncorrectable error)
- Forced memory enabling feature
- CPU degradation feature (logical isolation of a failed device)
- Bus parity error detection
- Temperature detection
- Error notification
- Internal voltage monitoring feature
- BIOS password feature
- Auto-rebuild feature (hot-swappable)

Many Available Features

- Software power-off
- Remote power-on feature
- AC-Link feature

Self-diagnosis

- Power On Self-Test (POST)
- Test and Diagnosis (T&D)

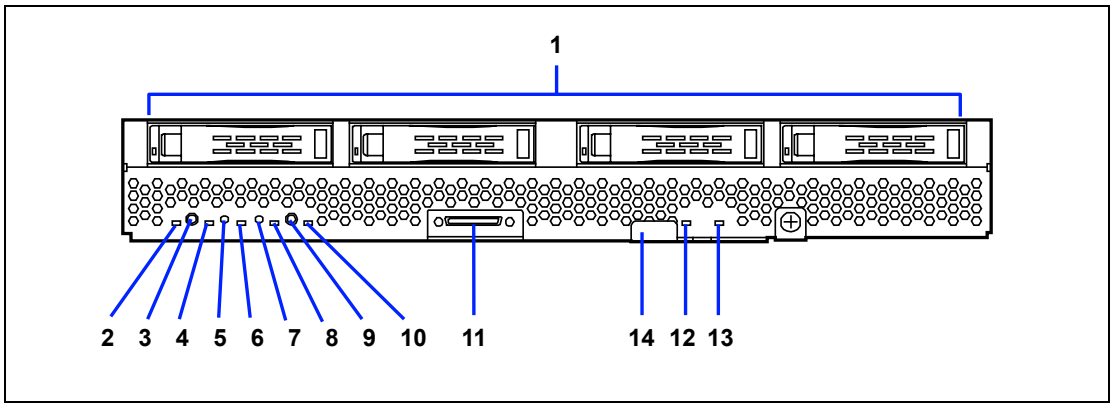
Easy and Fine Setup

- NEC EXPRESSBUILDER (system management tools)
- SETUP (BIOS setup utility)
- RAID configuration utility

PART NAMES AND CONTROLS

This section describes the names and features of the sections in the device.

Front View



1 Hard disk drive
Slots 0, 1, 2, and 3 from left to right

2 POWER lamp
The lamp goes on green when the CPU blade is powered on.
The lamp goes on amber when the CPU blade is powered off but the power is supplied from the power supply unit.

3 POWER switch
The switch is intended to turn on or off the power of the CPU blade itself. Pressing the switch for 4 seconds or longer causes the power supply to be turned off forcibly.

4 STATUS lamp (green/amber/red)
The lamp indicates the status of the CPU blade. See "Lamp Indications" described later for the indications and meanings of the lamp.

5 DUMP switch
Press this switch to run the memory dump.

6 LAN1 Link/Access lamp (green)
The lamp goes on when LAN port 1 is connected to the network. The lamp flashes when data is being transmitted.

7 RESET switch
Press this switch to reset the CPU blade.

8 LAN2 Link/Access lamp (green)
The lamp lights when LAN port 2 is connected to the network. The lamp flashes when data is being transmitted.

9 ID switch
Press this switch to turn on or off the ID lamp.

10 ID lamp (blue)
The lamp is intended to identify the CPU blade in the system. The lamp is lit by a switch or software command.
When the recognize command is received from software, the lamp flashes.
If you press the ID switch, the lamp goes on.

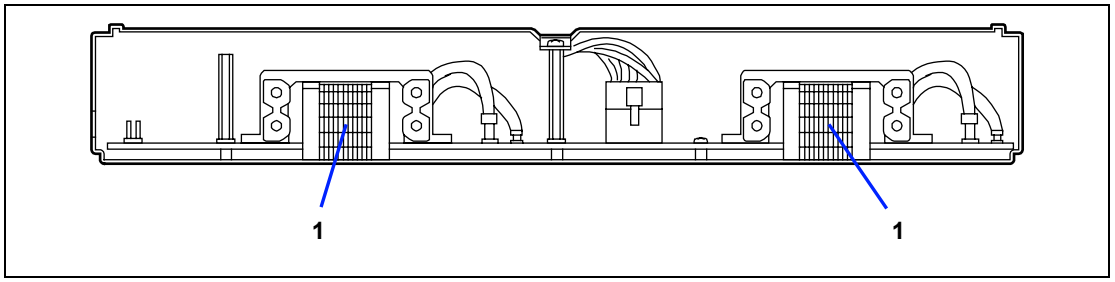
11 SUV connector
This connector sends or receives various signals.
The K410-150(00) SUV cable (sold separately or provided with the Blade Enclosure) is connected to this connector.

12 LAN3 Link/Access lamp (green)
The lamp goes on when LAN port 3 is connected to the network. The lamp flashes when data is being transmitted.

13 LAN4 Link/Access lamp (green)
The lamp lights when LAN port 4 is connected to the network. The lamp flashes when data is being transmitted.

14 Eject lever
Pull the lever to remove the CPU blade from the Blade Enclosure.

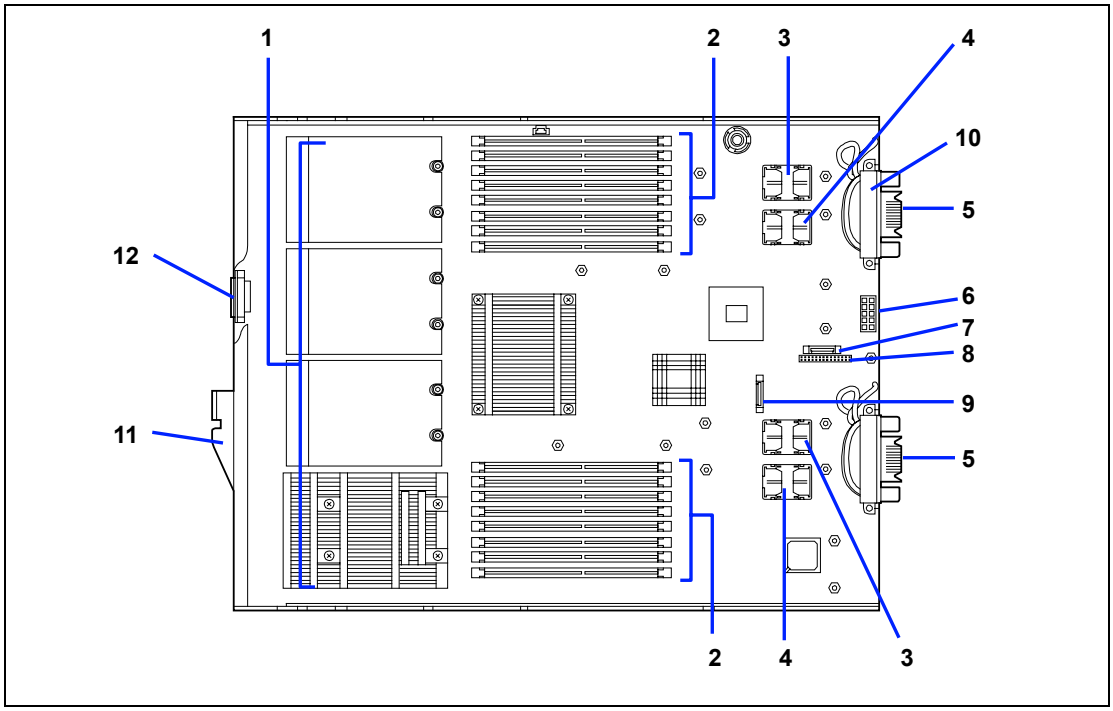
Rear View



1 MP connector

Internal View

CPU Unit



1 CPU socket
#4, #3, #2, and #1 from top

2 DIMM socket
#16, #15, #12, #11, #8, #7, #4, #3, #1, #2, #5, #6, #9, #10, #13, and #14 from top

3 Type II mezzanine slot
Slot to install mezzanine card for blade

4 Type I mezzanine slot
Slot to install mezzanine card for blade

5 MP connector
Used to connect with the midplane in optional Blade Enclosure.

6 Connector for power cable
Connect the power cable of the SAS board.

7 Li-Ion battery

8 Connector for signal cable (2)
Connect the signal cable (2) of the SAS board.

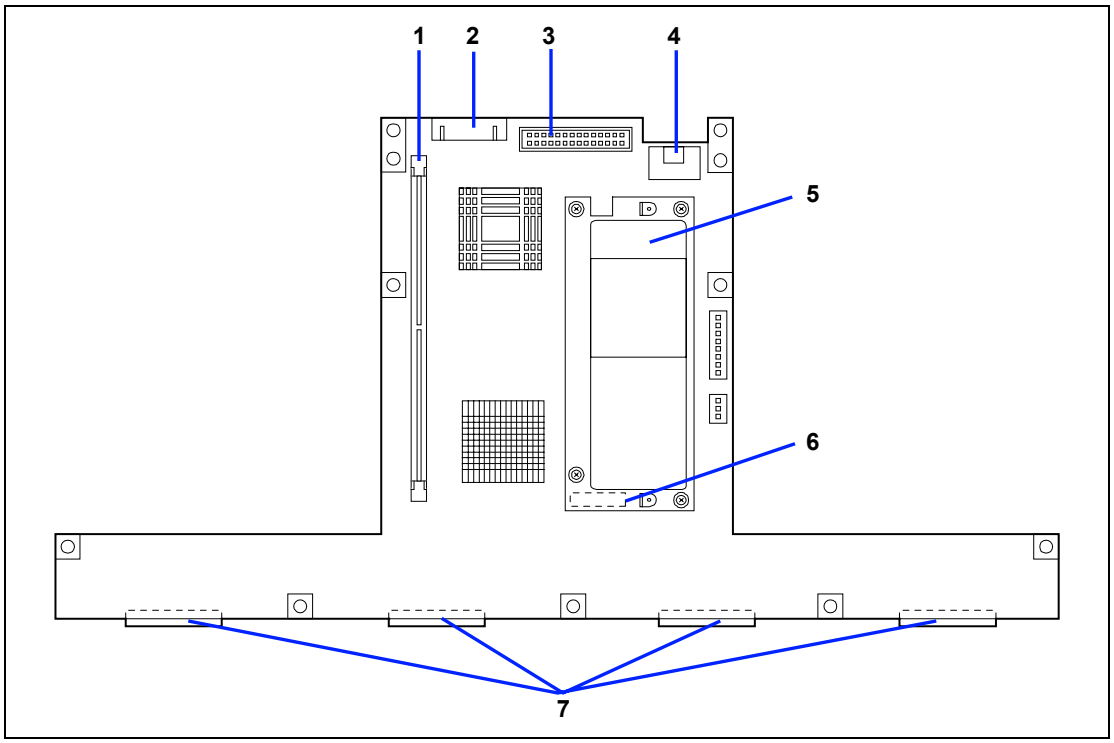
9 Connector for signal cable (1)
Connect the signal cable (1) of the SAS board.

10 MAC address label

11 Eject lever

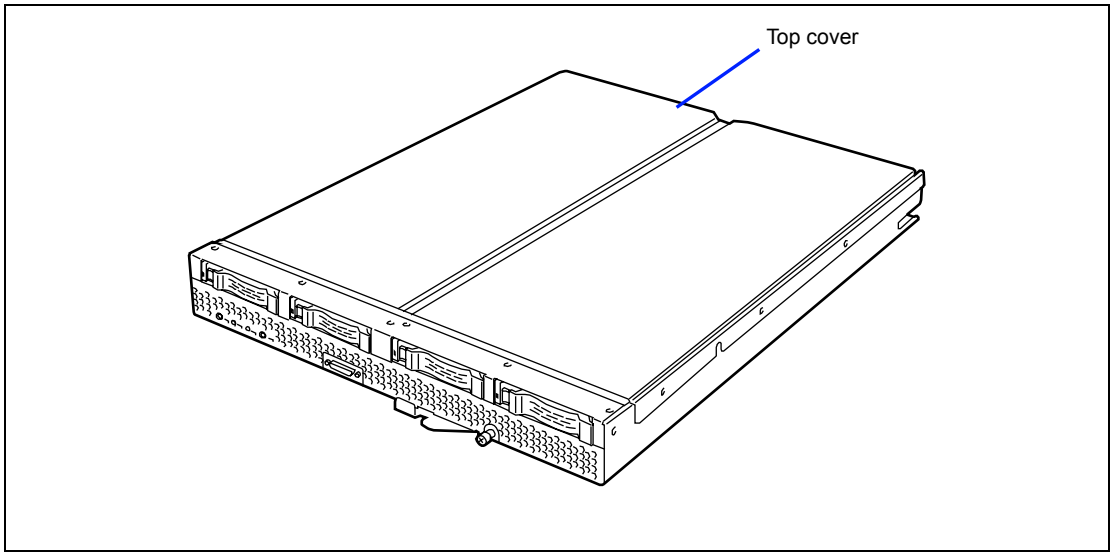
12 SUV connector

SAS Board



1 **DIMM connector for onboard RAID**
2 **Connector for signal cable (1)**
Connect the signal cable (1) of the CPU unit.
3 **Connector for signal cable (2)**
Connect the signal cable (2) of the CPU unit.
4 **Connector for power cable**
Connect the power cable of the CPU unit.
5 **NiMH battery module**
6 **Battery module connector**
7 **SAS connector**
Used to connect with the hard disk drives

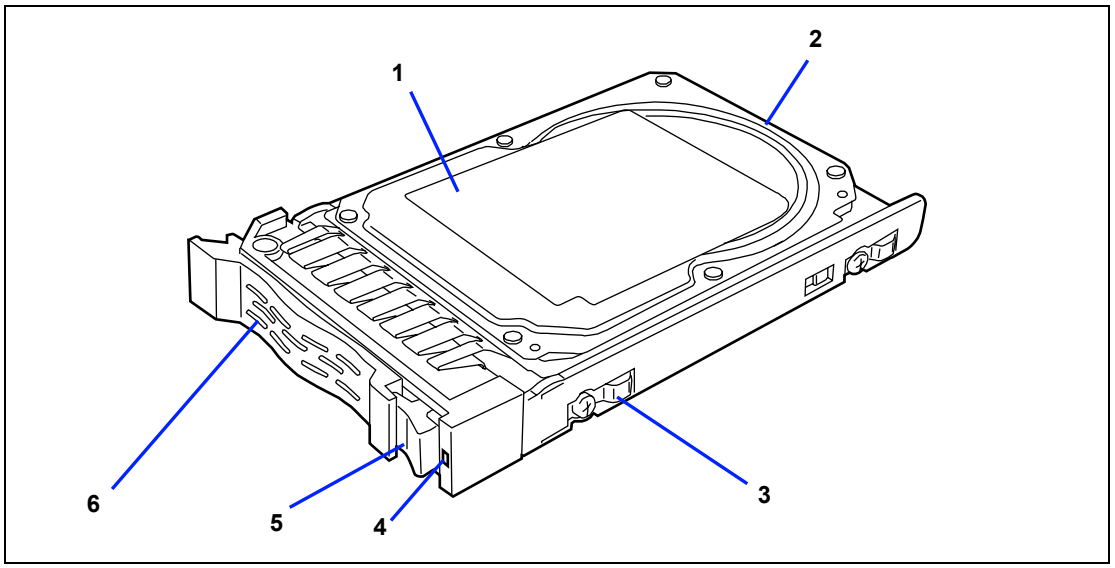
External View



1 Top cover

Hard Disk Drive

The hard disk drive is an optional device. An operating system may be installed in the hard disk drive. Handle it carefully.



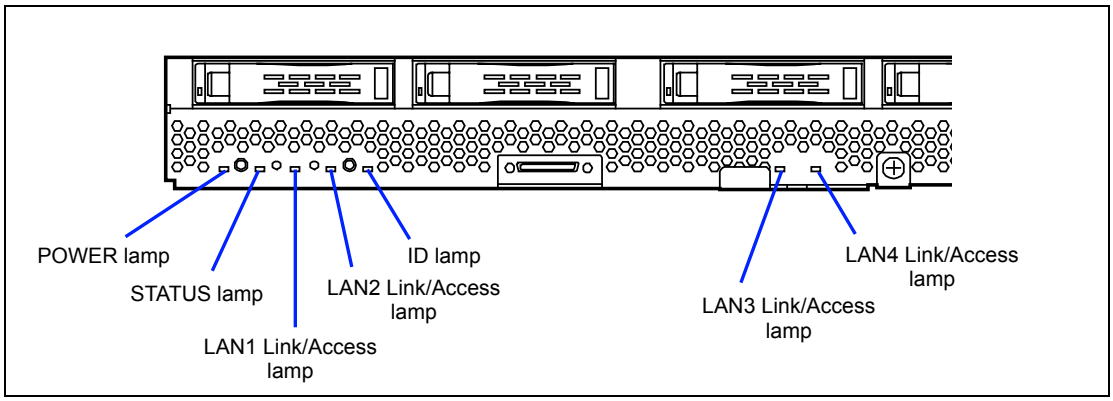
1 **Hard disk drive**
2 **BP connector**
The connector is connected to the SAS board.
3 **Drive carrier**
4 **Disk access lamp (green/amber)**
Lights green in accessing to a hard disk drive.
Lights amber if a fault occurs in a hard disk drive. Flashes amber while array disks are rebuilt.
5 **Lever**
The lever is intended to unlock the hard disk drive. Pull the lever to remove the hard disk drive.
6 **Handle**
Hold the handle when the hard disk drive is installed or removed.

Lamp Indications

This section describes the positions and display meanings of the lamps on the CPU blade and other devices.

CPU Blade

The CPU blade includes seven lamps.



POWER Lamp

The POWER lamp lights green while the power of the CPU blade is on. The lamp lights amber when the CPU blade is powered off but the power is supplied from the power supply unit. The lamp is off if the power is not supplied to the system.

STATUS Lamp

The STATUS lamp stays lit in green when the CPU blade is in successful operation. When the STATUS lamp is flashing in amber or red, it indicates that the system has failed.

In addition, you can view the detailed information on error message on virtual LCD when the STATUS lamp is flashing in amber or red.

You can use the virtual LCD through the Web browser of EXPRESSSCOPE engine (BMC) or NEC DianaScope Manager.

The following tables list indications of the STATUS lamp and virtual LCD, descriptions, and actions to take.

If an error occurs, contact your service representative.

NOTE: If the CPU blade has the NEC ESMPRO installed, you can view the System Event Log (SEL) to identify the cause of a trouble.

STATUS lamp indications

STATUS lamp		Description	Action
Status	**Color**		
On	Green	The CPU blade is operating normally.	–
Off	–	The power is turned off.	Turn on the power.
On	Red	BMC is being initialized.	1. Wait until the lamp goes off. 2. If the lamp still goes on, check installation of the CPU blade.
Flash	Red	See the table "Virtual LCD indications when STATUS lamp is flashing in red" described in Chapter 8.	
Flash	Amber	See the table "Virtual LCD indications when STATUS lamp is flashing in amber" described in Chapter 8.	

NOTE: If the CPU blade is powered off while the STATUS lamp is flashing in amber or red, the indication of the STATUS lamp is retained except for certain factors. When the CPU blade is powered on, the STATUS lamp goes on green (normal status).

LAN (1 - 4) Link/Access Lamps

The lamp goes on when LAN port is connected to the network. The lamp flashes when data is being transmitted. When the CPU blade is powered on, it becomes ready to link with the network. The connection of LAN port is physically controlled by the EM card and the switch module installed in the Blade Enclosure (SIGMABLADE-H).

To check connection status of LAN port, refer to the User's Guide of the EM card and the switch module installed in the Blade Enclosure.

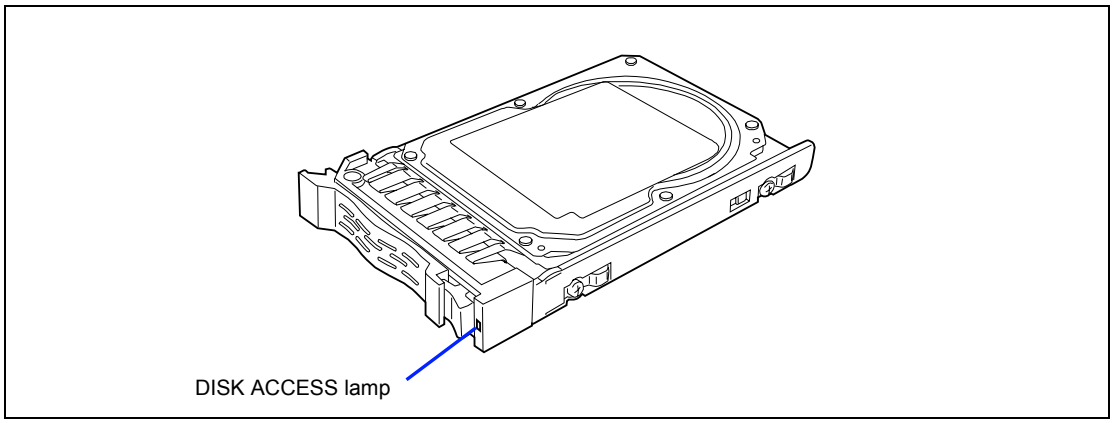
ID Lamp

Pressing the ID switch brings the lamp to light, and pressing again brings the lamp to go off. The ID lamp is intended to identify a specific CPU blade in the system in which more than one CPU blade is installed. Making this lamp being lit can help the maintenance work to identify the faulty device.

If you press the ID switch, the lamp goes on. When the recognize command is received from management software such as NEC ESMPRO Manager and NEC DianaScope Manager, the lamp flashes.

DISK ACCESS Lamp

A hard disk drive has one lamp.



The lamp lights green while accessing to a hard disk drive occurs. The lamp is lit amber if a hard disk drive cannot be interfaced with the CPU blade correctly due to a hardware fault in the CPU blade or another failure.

In the disk array configuration, the lamp flashes amber while the disk array is rebuilt (this does not indicate an error). After the rebuilding completes, the lamp returns to the normal indication. If the rebuilding fails, the lamp is lit amber.

USING YOUR SERVER

This section describes the basic operation of the blade server.

Power-on of Blade Server

There are the following two ways to turn on the power of the CPU blade. Turn on the power of the CPU blade in any of the two ways after turning on the powers of the display unit and peripherals connected to the CPU blade.

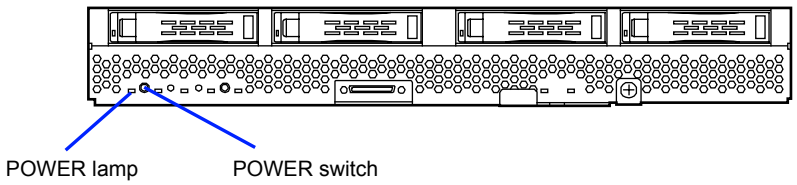
IMPORTANT: Perform the power-on operation of the CPU blade by either the use of the POWER switch or the remote power-on after the period of 30 seconds or longer has passed from the supply of AC power to every power unit. The power-on operation within the period of 30 seconds from the supply of AC power to every power unit may not turn on the power of the CPU blade. If so, turn on the power of the CPU blade by using the POWER switch after making sure that the AC power is supplied to every power unit.

NOTES:

- If a power cord on the Blade Enclosure is connected to a power controller including an uninterruptible power supply (UPS), make sure that the power of the power controller is turned on.
- When the power is supplied to the server, the initial diagnosis is executed for about 30 seconds. In this period, the POWER switch is disabled. Power on the server about 30 seconds immediately after you installed the CPU blade or turned on the server.

Power ON from CPU Blade

Press the POWER switch on the front panel of the CPU blade (the POWER lamp on the CPU blade goes on green).



Power ON from Network Serial Port

Depending on the BIOS setting of the CPU blade, the power of the CPU blade may be automatically turned on by a proper packet received from the network or via the modem connected to the serial port.

This power-on procedure can be specified by setting [Wake On Events] of [Advanced Chipset Control] in the BIOS SETUP Utility.

Operation after Power ON

If the CPU blade is connected with a display unit, the NEC logo appears on the screen of the display unit after a while from the power-on.

While the NEC logo appears, the CPU blade runs the self-diagnosis program (POST) to diagnose the CPU blade itself. See "POST" described later for details. At the completion of POST, OS is booted.

NOTE: If a fault is found during POST, it is interrupted and the error message notifying the fault appears. See Chapter 8.

POST

POST (Power On Self-Test) is the self-diagnostic program stored in the CPU blade.

When you power on the CPU blade, the system automatically runs POST to check the mother board, ECC memory module, CPU module, keyboard, and mouse. POST also displays messages of the BIOS SETUP utility, such as the start-up message, while in progress.

With the factory setup of the CPU blade, the NEC logo appears on the display unit (if connected) while POST is in progress. To display the POST check results, press **Esc**.

> **NOTE:** You can set the POST check results to appear on the display unit without pressing **Esc**. To do so, select "Enabled" for "Boot-time Diag Screen" under the Advanced menu of the BIOS SETUP utility. See Chapter 4 for details.

You don't always need to check the POST check results. Check messages that POST displays when:

- you use the blade server for the first time.
- the server appears to fail.
- the server beeps for many times between power-on and OS start-up.
- an error message appears on the display unit.

POST Execution Flow

The following describes the progress of POST in the chronological order.

IMPORTANT:

- Do not make unnecessary key entries or perform mouse operations while POST is in progress.
- Some system configurations may display the message "Press Any Key" to prompt a key entry. This message is driven by BIOS of an installed optional board. Make sure to read the manual that comes with the optional board before any key entry.
- Powering on the server, after you installed or removed an optional mezzanine card, may display the message that indicates incorrect board configuration and suspend POST.
  In such a case, press **F1** to continue POST. Board configuration can be made using the utility described later.

1. After a few seconds from power-on, POST starts checking the memory. The count message of the basic and expansion memory appears on the screen of the display unit (if connected). The memory check may takes a few minutes to complete depending on the memory size of the CPU blade. Also, it may take approximately one minute for the screen display to appear after rebooting the CPU blade.
2. Some messages appear upon completion of the memory check. These messages appear to indicate that the system has detected the CPU and other devices installed.
3. After a few seconds, POST displays the following message prompting you to launch the BIOS setup utility, SETUP, stored in the system memory of the CPU blade. This message appears at bottom left on the screen.

   Pattern 1:

   ```
   Press <F2> to enter SETUP
   ```

   Pattern 2:

   ```
   Press <F2> to enter SETUP or <F12> to Network
   ```

   Pattern 3:

   ```
   Press <F1> to resume, <F2> to enter Setup, <F12> to Network
   ```

   * The message depending on the status of CPU blade.

Launch the BIOS SETUP utility when you need to change the settings to meet the requirements for the CPU blade. As long as the above message is not displayed with an error message, you don't have to launch the utility. (Ignore the message. POST will automatically proceed.)

To launch the SETUP utility, press **F2** while the above message is displayed. See Chapter 4 for setup and parameters.

The CPU blade automatically restarts POST all over again when you exit the SETUP utility.

4. If the server has an optional board installed, POST displays the board information on the screen.

   Refer to the manual supplied with the board for details.

   POST will automatically proceed a few seconds later.

5. If you have set the password using the BIOS SETUP utility, the password entry screen appears upon successful completion of POST.

   Up to three password entries will be accepted. Three incorrect password entries disable the system to boot. In such a case, turn off the power and wait about 30 seconds before turning on to boot the CPU blade.

   IMPORTANT: Do not set a password before installing an OS.

6. The OS starts when POST completes.

POST Error Messages

When POST detects an error, it displays an error message on the screen. See Chapter 8 for POST error codes.

IMPORTANT: Take a note on the messages displayed before consulting with your service representative. Alarm messages are useful information for maintenance.

Power-off of Blade Server

Turn off the power in the following procedure. If a power cord of the Blade Enclosure is connected to the UPS, refer to the manual shipped with the UPS or the manual of the application controlling the UPS.

1. Shutdown OS.
2. Press the POWER switch on the CPU blade.
   The POWER lamp on the CPU blade goes on amber.

   <When the power of the entire system is turned off>

   Shutdown all the CPU blades installed in the Blade Enclosure, turn off the power, and remove all the power cords from the Blade Enclosure.

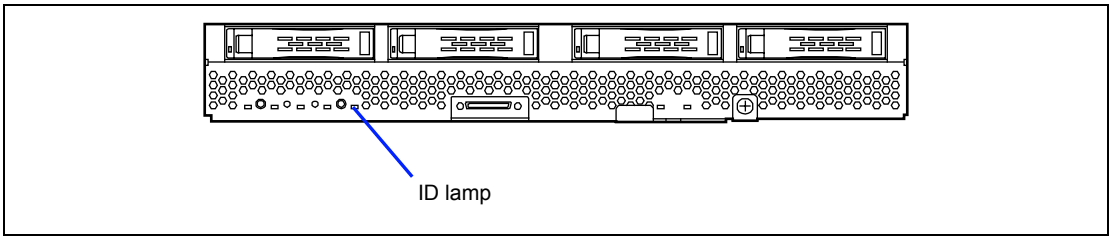
Device Identification

To identify the device to be maintained among more than one device, ID lamp is used.

The ID lamp is located on the CPU blade installed in the Blade Enclosure.

The ID lamp allows you to identify the device subject to maintenance among more than one CPU blade installed in the Blade Enclosure.

The ID lamp on CPU blade can also be made flashed blue by proper software commands from the management PC on the network. In addition, pressing the ID switch on the CPU blade brings the ID lamp to light.



Chapter 3

Setting Up Your Server

This chapter describes how to set up the server appropriate for your system, on a step-by-step basis.

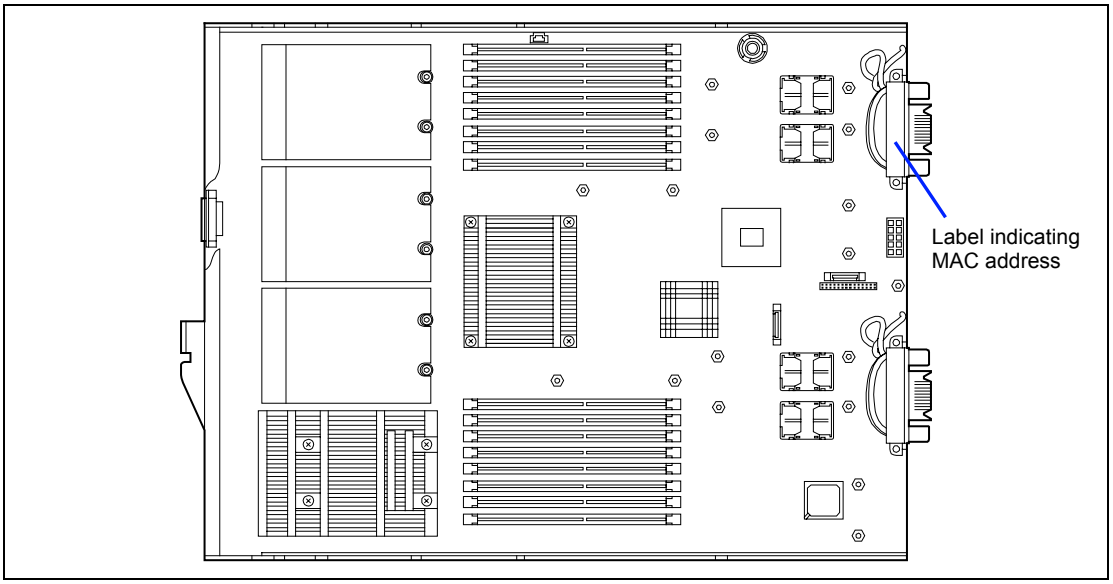
BEFORE INSTALLING CPU BLADE

Be sure to check the MAC addresses before installing a CPU blade in the Blade Enclosure.

Check of MAC Address

A MAC address indicates the address specific for the network. It is expressed by 12-digit alphanumeric. Each of the CPU blade has four MAC addresses. Check the MAC addresses before installing a CPU blade in the Blade Enclosure.

A MAC address is indicated in the area as shown in the figure below.



The address of LAN port depends on the numeral and alphabet of the last digit of MAC address.

- When the numeral/alphabet of the last digit is even number, A, C, or E:
  The MAC address for LAN port 1 is as described on the label.
  The MAC address for LAN port 2 can be obtained by adding 1 to the described MAC address.

  The MAC address for LAN port 3 can be obtained by adding 2 to the described MAC address.

  The MAC address for LAN port 4 can be obtained by adding 3 to the described MAC address.

- When the numeral/alphabet of the last digit is odd number, B, D, or F:
  The MAC address for LAN port 1 can be obtained by adding 1 to the described MAC address.
  The MAC address for LAN port 2 can be obtained by adding 2 to the described MAC address.

  The MAC address for LAN port 3 can be obtained by adding 3 to the described MAC address.

  The MAC address for LAN port 4 can be obtained by adding 4 to the described MAC address.

The MAC addresses can be checked from the proper Windows or Linux command.

- Windows
  Enter "ipconfig /all" for the MS-DOS prompt or from [Run] in the Start menu to see the indicated physical address part.

- Linux
  Enter "ifconfig" for the prompt to see the indicated "Hwaddr".

Installing DIMM

If your CPU blade is not equipped with memory device, install DIMMs according to Chapter 9. Two DIMMs must be populated in pair.

INSTALLING THE CPU BLADE

Install the CPU blade in the dedicated Blade Enclosure. Refer to the User's Guide of Blade Enclosure for how to install the CPU blade.

IMPORTANT: The CPU blade is extremely sensitive to static electricity. Make sure to touch the metal frame of the CPU blade to discharge static electricity from your body before handling the CPU blade. Do not touch the pins, leads, or circuitry and place the CPU blade directly on the desk. For static notes, see "Anti-static Measures" in Chapter 9.

INSTALLING THE HARD DISK DRIVE

Install a hard disk drive according to the procedure described in Chapter 9.

IMPORTANT:

- The hard disk drive is extremely sensitive to static electricity. Make sure to touch the metal frame of the CPU blade to discharge static electricity from your body before handling the hard disk drive. Do not touch the pins, leads, or circuitry and place the hard disk drive directly on the desk. For static notes, see "Anti-static Measures" in Chapter 9.
- Some hard disk drive may contain operating system. Strict care must be taken when handling it.
- Handle the hard disk drive carefully so that the hard disk drive may not be given excess shocks and vibrations.

MAKING CONNECTIONS

Connect peripheral devices to the CPU blade.

IMPORTANT:

- Contact the maintenance engineer in your service representative if you have any requests on the system configuration including the connection to the uninterruptible power supply system or auto power controller and the time schedule operation.
- If you are installing the CPU blade in the Blade Enclosure (SIGMABLADE-H), follow instructions described in the User's Guide of the Blade Enclosure.

⚠ WARNING

Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not hold the power plug with a wet hand.
- Do not connect earth lines to any gas tubes.

⚠ CAUTION

Observe the following instructions to use the server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

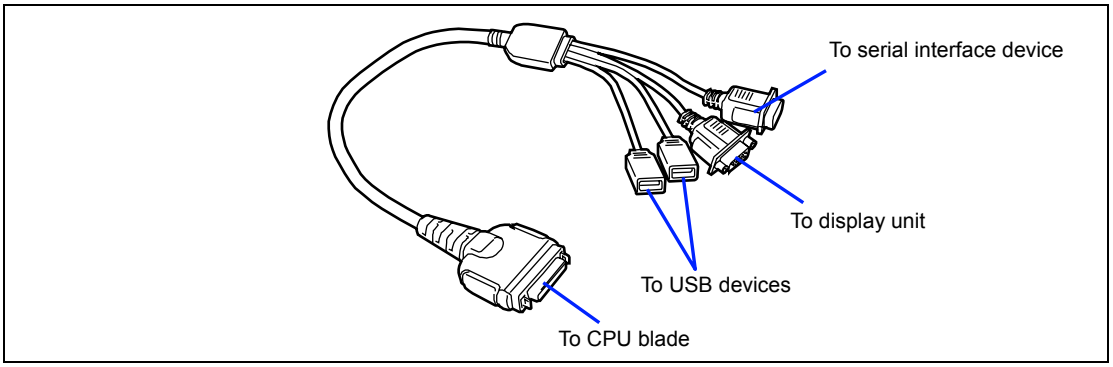
- Do not plug the power cord in to an improper power source.
- Do not connect the power cord to an outlet that has an illegal number of connections.
- Insert the power plug into the outlet as far as it goes.
- Use the authorized power cord only.
- Do not connect or disconnect any interface cable with the power cord of the server plugged to a power source.
- Do not use any unauthorized interface cable.

In the ordinary operation, any cables may not be connected to a CPU blade. Proper cable(s) should be connected to the USB, serial, and/or VGA ports on the CPU blade in the following cases:

- Installing OS (when the CPU blade is installed in Blade Enclosure (10U))
- Maintenance
- Updating BIOS and firmware

The separately priced K410-150(00) SUV cable can only be used to connect with the CPU blade. (The K410-150(00) SUV cable is a standard accessory for the Blade Enclosure (SIGMABLADE-H))

The 410-150(00) SUV cable has the USB, serial interface, and monitor connectors at the other ends. Connect a proper device at each of the ends.



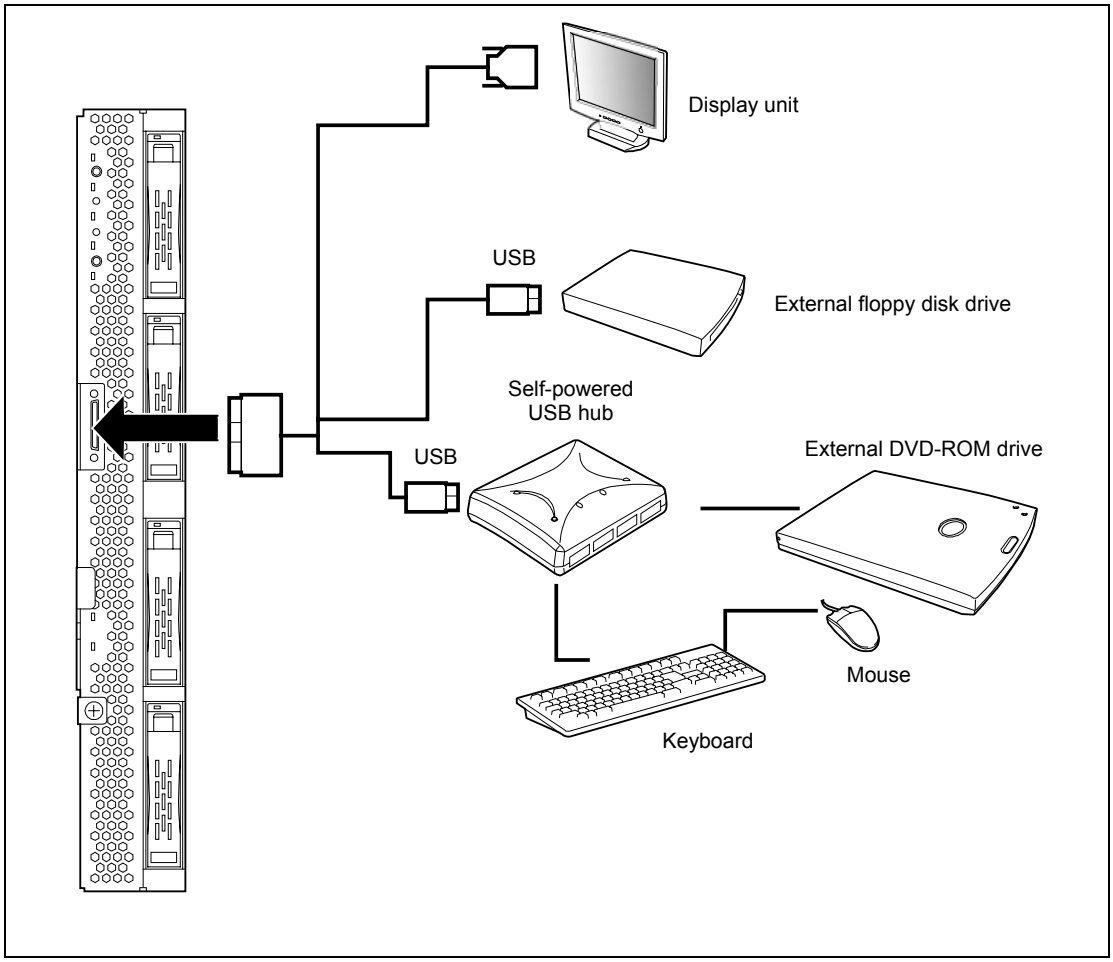
IMPORTANT:

- To connect a peripheral or interface cable provided by a vendor other than NEC (or third party) to the CPU blade, make sure that the device is available for the CPU blade. Some third party devices are not available for the CPU blade.
- The serial port connector cannot be directly connected with the leased line.
- Do not connect/disconnect the SUV cable or add/remove the USB device until the operating system starts running.
  To connect/disconnect the SUV cable or add/remove the USB device after OS startup, follow restrictions of operating system.
  If the device having serial interface is connected, first power off the CPU blade and destination device, and remove the power cord from the destination device before connecting/disconnecting SUV cable or serial cable. Failure to follow it may cause the devices to be defected due to the potential difference between them.
- If the CPU blade is installed in the Blade Enclosure and you are going to install an OS in it, use the SUV cable. See the next page for connection.

USB Connection by K410-150(00) SUV Cable

Connect the floppy disk drive, DVD-ROM drive, keyboard, and mouse according to the figure shown below.

The USB hub should have the self-power specification if it is used.



Network

The CPU blade is connected with network via the Blade Enclosure. Refer to the User's Guide of the Blade Enclosure for details.

Chapter 4

Configuring Your Server

This chapter describes Basic Input Output System (BIOS) configuration.

When you install the blade server for the first time or install/remove optional devices, thoroughly read this chapter for better understanding and correct setups.

SYSTEM BIOS ~ SETUP ~

The SETUP utility is provided to make basic hardware configuration for the CPU blade. This utility is pre-installed in the flash memory of the CPU blade and ready to run.

The CPU blade is configured with the correct parameters using the SETUP utility and shipped in the best conditions. Thus, you don't need to use the SETUP utility in most cases. However, you might wish to use the SETUP utility in the cases described below.

IMPORTANT:

- The SETUP utility is intended for system administrator use only.
- The SETUP utility allows you to set a password. The CPU blade is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters of the SETUP utility. With the User password, system parameters available for viewing and changing are limited.
- Do not set any password before installing the OS.
- The CPU blade contains the latest version of the SETUP utility. Dialog boxes appear on your SETUP utility, thus, may differ from descriptions in this manual. If you find anything unclear, see the online help or ask your sales representative.

Starting SETUP Utility

Powering on the CPU blade starts POST (Power On Self-Test) and displays its check results. If the NEC logo is displayed, press **Esc**.

After a while, the following message appears at bottom left on the screen.

Pattern 1:

```
Press <F2> to enter SETUP
```

Pattern 2:

```
Press <F2> to enter SETUP or <F12> to Network
```

Pattern 3:

```
Press <F1> to resume, <F2> to enter Setup, <F12> to Network
```

* The message depending on the status of CPU blade.

Press **F2** to start the SETUP utility and display its Main menu.

If you have previously set a password with the SETUP utility, the password entry screen appears. Enter the password.

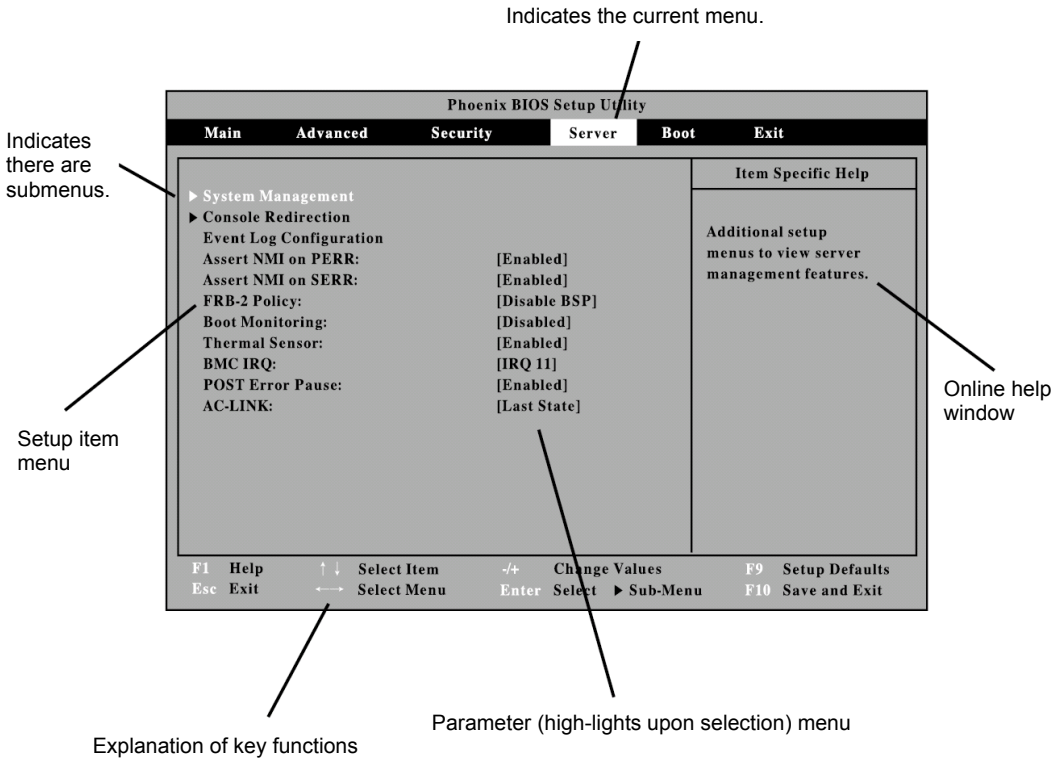
```
Enter password:[                ]
```

Up to three password entries will be accepted. If you fail to enter the password correctly for three consecutive times, the CPU blade halts. (You can no longer proceed.) Power off the CPU Blade.

NOTE: The CPU blade is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters. With the User password, system parameters available for viewing and changing are limited.

Description on On-Screen Items and Key Usage

Use the following keyboard keys to work with the SETUP utility. (Key functions are also listed at the bottom of the screen.)


Indicates the current menu.
Indicates there are submenus.
Phoenix BIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
System Management
Console Redirection
Event Log Configuration
Assert NMI on PERR: [Enabled]
Assert NMI on SERR: [Enabled]
FRB-2 Policy: [Disable BSP]
Boot Monitoring: [Disabled]
Thermal Sensor: [Enabled]
BMC IRQ: [IRQ 11]
POST Error Pause: [Enabled]
AC-LINK: [Last State]
Additional setup menus to view server management features.
F1 Help ↑ ↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit
Online help window
Setup item menu
Explanation of key functions
Parameter (high-lights upon selection) menu

Cursor (↑, ↓):	Selects an item on the screen. The highlighted item is currently selected.
Cursor (←, →):	Selects the Main, Advanced, Security, Server, Boot, or Exit menu.
– and **+**:	Changes the value (parameter) of the selected item. When a submenu option (an option preceded by "➤") is selected, these keys are disabled.
Enter:	Press **Enter** to select (determine) parameters.
Esc:	Displays the previous screen.
F1:	Press **F1** when you need help on SETUP operations. The help screen for SETUP operations appears. Press **Esc** to return to the previous screen.
F9:	Sets the parameter of the currently displayed item back to the factory set parameter.
F10:	Save and exit the SETUP utility.

Configuration Examples

The following describes examples of configuration required to use software-link features or for system operations.

Date and Time

To change system date or time

Select [Main] – [System Time] and [System Date].

Set the correct date and time before running the system.

Link with Management Software

To control power supply of the CPU blade with NEC ESMPRO Manager via the network

Select [Advanced] – [Advanced Chipset Control] – [Wake On LAN/PME] – [Enabled].

Boot

To change the boot order of devices connected to the CPU blade

Select [Boot] and specify the boot order.

To display POST check results

Select [Advanced] – [Boot-time Diagnostic Screen] – [Enabled].

You can also press **Esc** while the NEC logo is on the screen to display POST check results.

To use remote wake-up feature

- Via Modem:

  [Advanced] – [Advanced Chipset Control] – [Wake on Ring] – [Enabled]

- Via LAN:

  [Advanced] – [Advanced Chipset Control] – [Wake on LAN/PME] – [Enabled]

  NOTE: The Wake On LAN/PME feature is available only on LAN ports 1 through 3. Use of Wake On LAN/PME feature on LAN port 4 or any other option cards is not supported.

- Via RTC alarm:

  [Advanced] – [Advanced Chipset Control] – [Wake on RTC Alarm] – [Enabled]

To control from the HW console

Select [Server] – [Console Redirection] and set each item.

Memory

To pause the POST if the memory error is detected

Select [Advanced] – [Memory/Processor Error] – [Halt].

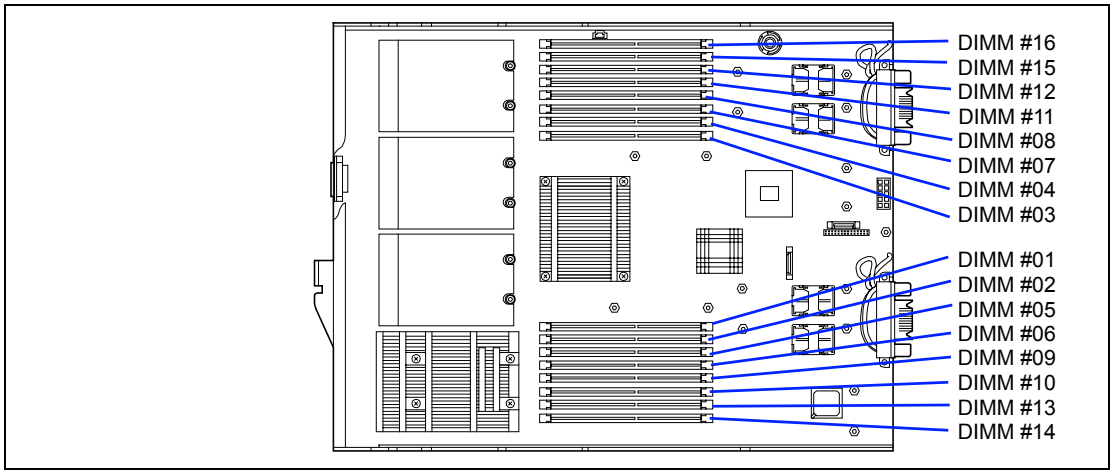
To check the installed memory (DIMM) status

Select [Advanced] – [Memory Configuration] – [DIMM Group #1 - #8 Status] and check the status indications.

To clear the memory (DIMM) error information

Select [Advanced] – [Memory Configuration] – [Memory Retest] – [Yes] and reboot the system.

The on-screen DIMM numbers and socket locations on the mother board are associated as shown in the figure below.



CPU

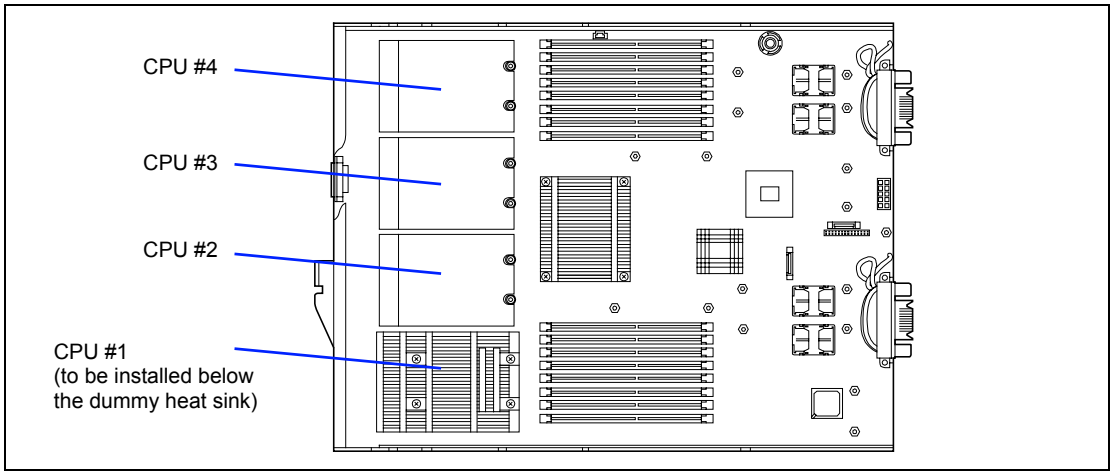
To pause the POST if the system detects the CPU error

Select [Advanced] – [Memory/Processor Error] – [Halt].

To check the installed CPU status

Select [Main] – [Processor Settings] and check the status indications.

The on-screen CPU numbers and socket locations on the mother board are associated as shown in the figure below.



To clear the CPU error information

Select [Main] – [Processor Settings] – [Processor Retest] – [Yes] and reboot the system.

Keyboard

To set Numlock and key repeat

Select [Advanced] – [NumLock] – [On].

Security

To set passwords on the BIOS level

Select [Security] – [Set Supervisor Password] and enter a password.

Set Supervisor password first, then User password.

To enable/disable the POWER switch

Select [Security] – [Power Switch Inhibit] – [Disabled].

Select [Security] – [Power Switch Inhibit] – [Enabled].

To set this item, the Supervisor and User passwords must have been set.

IMPORTANT: Even if [Power Switch Inhibit] is set to [Enabled], the forced shutdown (see Chapter 8) is still available.

External Devices

To set up external devices

Select [Advanced] – [Peripheral Configuration] and set up each device.

Internal Devices

To set up internal PCI devices of the CPU blade

Select [Advanced] – [PCI Configuration] and set up each device.

To clear the hardware configuration data (after installing/removing internal devices)

Select [Advanced] – [Reset Configuration Data] – [Yes].

Saving the Configuration Data

To save the BIOS configuration data

Select [Exit] – [Exit Saving Changes] or [Save Changes].

To discard changes to the BIOS configuration data

Select [Exit] – [Exit Discarding Changes] or [Discard Changes].

To resume the default BIOS configuration data (may differ from factory-set value)

Select [Exit] – [Load Setup Defaults].

To save the current settings as user-defined configuration

Select [Exit] – [Save Custom Defaults].

To load the user-defined configuration data

Select [Exit] – [Load Custom Defaults].

Menu and Parameter Descriptions

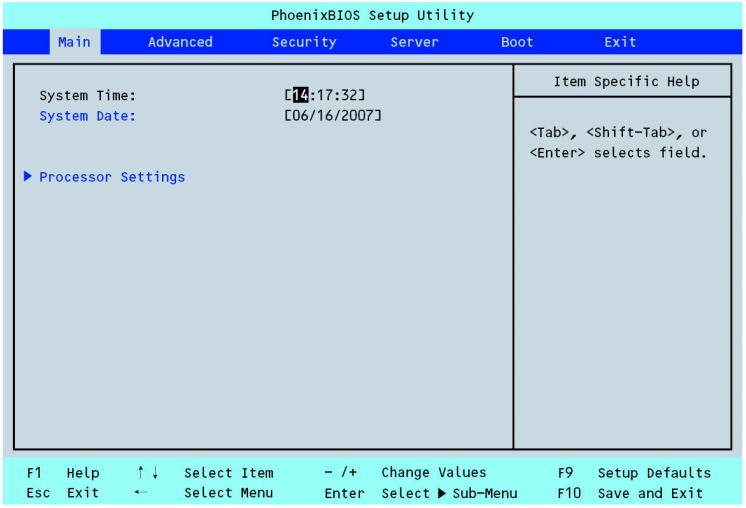
The SETUP utility has the following six major menus:

- Main
- Advanced
- Security
- Server
- Boot
- Exit

To set minute functions, select a submenu from the above menus. The following describes available functions and parameters, as well as the factory-set, for each menu.

Main

Start the SETUP utility to display the Main menu.



Available options in the Main menu are listed below.

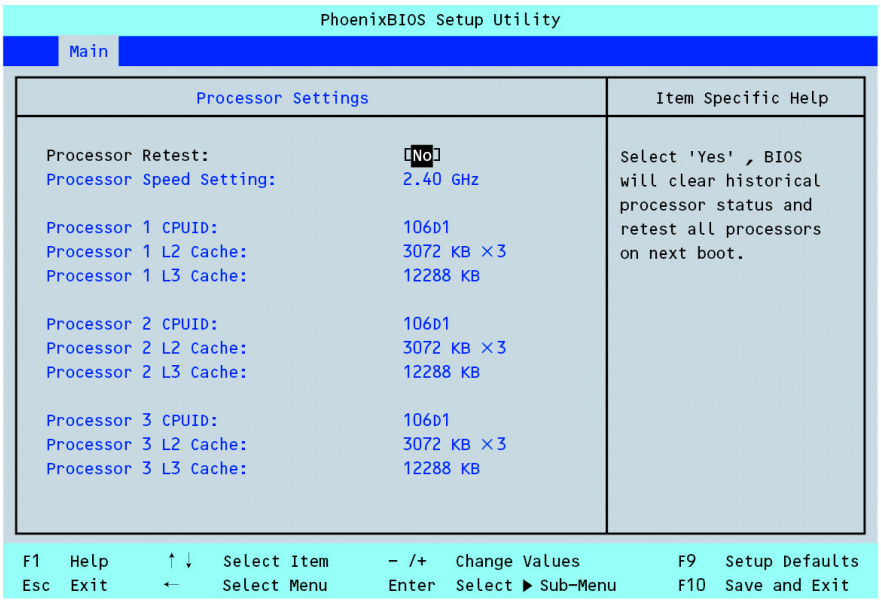
Option	Parameter	Description	Your Setting
System Time	HH:MM:SS	Shows the current time.	
System Date	MM/DD/YYYY	Shows the current date.	

[ ]: Factory-set

IMPORTANT: If the system clock is remarkably delayed or advanced as the passage of time in spite of adjustment, contact your service representative for maintenance.

Processor Settings

If you select "Processor Settings" on the Main menu, the screen shown below appears.


PhoenixBIOS Setup Utility
Main
Processor Settings
Item Specific Help
Processor Retest: [No]
Processor Speed Setting: 2.40 GHz
Processor 1 CPUID: 106D1
Processor 1 L2 Cache: 3072 KB ×3
Processor 1 L3 Cache: 12288 KB
Processor 2 CPUID: 106D1
Processor 2 L2 Cache: 3072 KB ×3
Processor 2 L3 Cache: 12288 KB
Processor 3 CPUID: 106D1
Processor 3 L2 Cache: 3072 KB ×3
Processor 3 L3 Cache: 12288 KB
Select 'Yes' , BIOS will clear historical processor status and retest all processors on next boot.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

See the table below for the items.

Option	Parameter	Description	Your Setting
Processor Retest	[No] Yes	Set to "Yes" to clear the error information on the CPU, and perform retest. The parameter is changed to "No" after the system is booted.	
Processor Speed Setting	–	Indicates the frequency of the CPU.	
Processor 1 CPUID	Numeral Disabled Error Not installed	A numeral indicates the ID of processor 1. "Disabled" or "Error" indicates that the processor is defected. "Not Installed" indicates that the processor is not installed. (View only)	
Processor 1 L2 Cache	–	Indicates the 2nd cache of processor 1. (View only)	
Processor 1 L3 Cache	–	Indicates the 3rd cache of processor 1, if exists. (View only)	
Processor 2 CPUID	Numeral Disabled Error Not installed	A numeral indicates the ID of processor 2. "Disabled" or "Error" indicates that the processor is defected. "Not Installed" indicates that the processor is not installed. (View only)	
Processor 2 L2 Cache	–	Indicates the cache of processor 2.	
Processor 2 L3 Cache	–	Indicates the 3rd cache of processor 2, if exists. (View only)	

Option	Parameter	Description	Your Setting
Processor 3 CPUID	Numeral Disabled Error Not installed	A numeral indicates the ID of processor 3. "Disabled" or "Error" indicates that the processor is defected. "Not Installed" indicates that the processor is not installed. (View only)	
Processor 3 L2 Cache	–	Indicates the cache of processor 3.	
Processor 3 L3 Cache	–	Indicates the 3rd cache of processor 3, if exists. (View only)	
Processor 4 CPUID	Numeral Disabled Error Not installed	A numeral indicates the ID of processor 4. "Disabled" or "Error" indicates that the processor is defected. "Not Installed" indicates that the processor is not installed. (View only)	
Processor 4 L2 Cache	–	Indicates the cache of processor 4.	
Processor 4 L3 Cache	–	Indicates the 3rd cache of processor 4, if exists. (View only)	
Execute Disable Bit	Disabled [Enabled]	Specify whether HW DEP feature on OS is enabled or disabled.	
Virtualization Technology	Disabled [Enabled]	Specify whether the virtualization technology of Intel processor is enabled or disabled.	
Hardware Prefetcher	[Disabled] Enabled	Specify whether the hardware prefetcher of the processor is enabled or disabled. If enabled, when the stream is detected in the data access pattern to the secondary cache, prefetch is executed to the secondary cache.	
Adjacent Cache Line Prefetch	Enabled [Disabled]	Specify whether the adjacent cache line prefetch of the processor is enabled or disabled. If disabled, cache line fill reads 64 bytes. If enabled, cache line fill reads 128 bytes.	
Intel SpeedStep(R) Technology	[Disabled] Enabled	Specify whether Enhanced Intel SpeedStep(R) Technology feature is enabled or disabled. If the CPU does not support this feature, this item is not visible.	

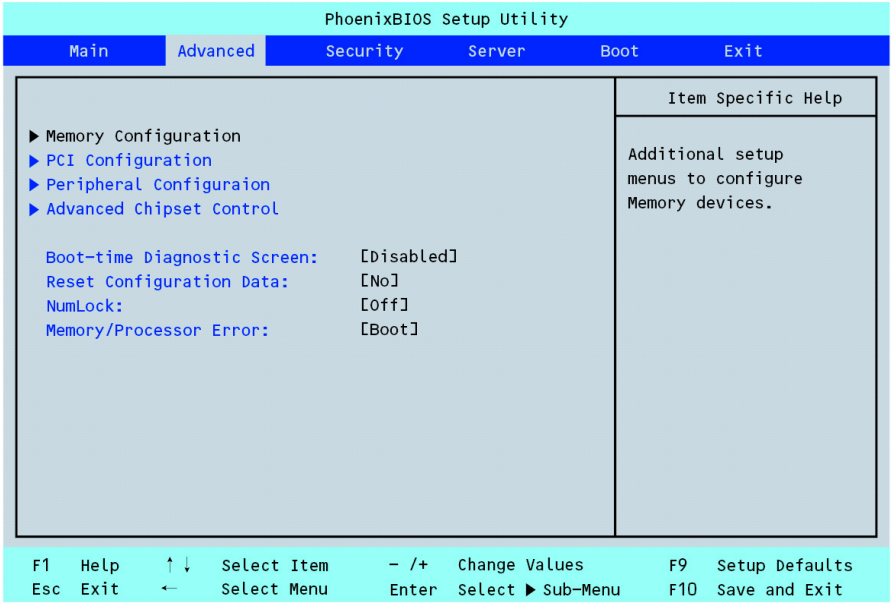
[ ]: Factory-set

NOTE: The capacity of L2 cache of processor is represented by [Capacity] * [Number of processors].

Advanced

Move the cursor onto "Advanced" to display the Advanced menu.

Selecting a menu item preceded by symbol "➤" and pressing **Enter** allows the appropriate submenu to appear.



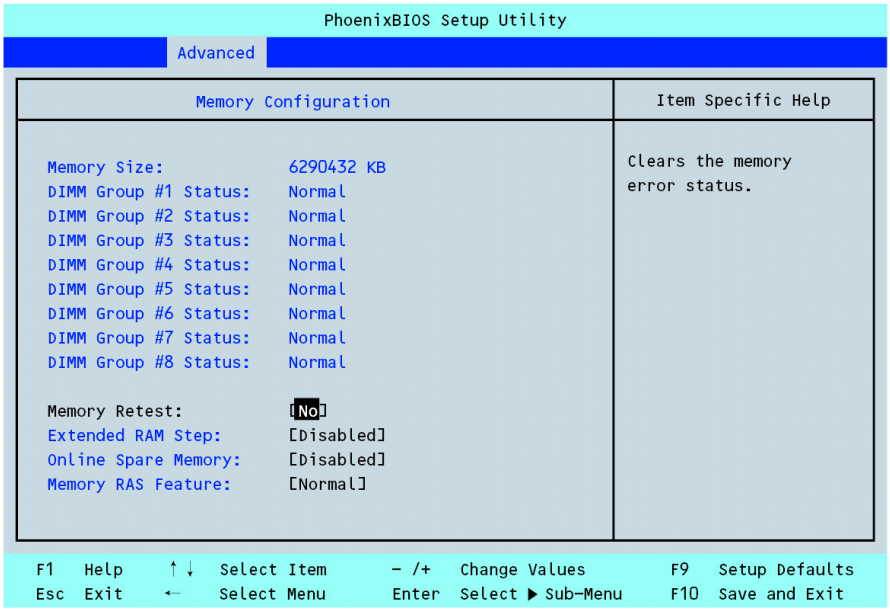
See the table below for the items.

Option	Parameter	Description	Your Setting
Boot-time Diagnostic Screen	[Disabled] Enabled	Specify whether the self-diagnosis (POST) running screen is displayed or not on booting. If this item is set to "Disabled," the "NEC" logo appears during POST. (Pressing **Esc** in the status causes the screen display to be switched to the POST execution screen. If [Serial Port B] is specified for [Server] - [Console Redirection] - [BIOS Redirection Port], the POST running screen is automatically displayed.	
Reset Configuration Data	[No] Yes	Set this item to "Yes" to clear the configuration data (system information stored by POST). The parameter is changed to "No" after the system is booted.	
NumLock	On [Off]	Specify whether the numlock feature is enabled or disabled on booting.	
Memory/Processor Error	[Boot] Halt	The boot up operation pauses at the end of POST if a memory error or a CPU error occurs.	

[ ]: Factory-set

Memory Configuration

Select "Memory Configuration" on the Advanced menu to display the following screen.


PhoenixBIOS Setup Utility
Advanced
Memory Configuration
Item Specific Help
Memory Size: 6290432 KB
DIMM Group #1 Status: Normal
DIMM Group #2 Status: Normal
DIMM Group #3 Status: Normal
DIMM Group #4 Status: Normal
DIMM Group #5 Status: Normal
DIMM Group #6 Status: Normal
DIMM Group #7 Status: Normal
DIMM Group #8 Status: Normal
Memory Retest: [No]
Extended RAM Step: [Disabled]
Online Spare Memory: [Disabled]
Memory RAS Feature: [Normal]
Clears the memory error status.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

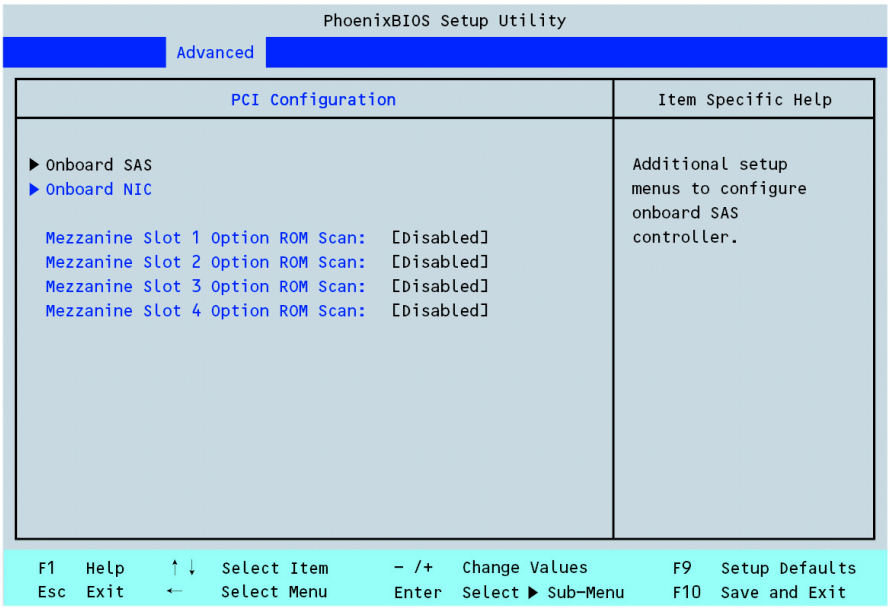
See the table below for the items.

Option	Parameter	Description	Your Setting
Memory Size	–	Indicates the total capacity of installed memory. (View only)	
DIMM Group #1 - #8 Status	Normal Disabled Not installed	Indicates the current memory status. "Normal" indicates that the memory devices operate normally. "Disabled" indicates that one or more memory devices are defected. (View only) See Chapter 9 for details of DIMM Group.	
Memory Retest	[No] Yes	Set to "Yes" to clear the error information on the memory, and perform retest. The parameter is changed to "No" after the system is booted.	
Extended RAM Step	1MB 1KB Every Location [Disabled]	"1MB" indicates that the memory test is done in the unit of 1MB. "1KB" indicates that the memory test is done in the unit of 1KB. "Every-location" indicates that every memory device is tested. "Disabled" indicates that only memory initialization is done.	
Online Spare Memory	[Disabled] Enabled	Set to [Enabled] to enable the online spare memory feature. See Chapter 9.	
Memory RAS Feature	[Normal] Mirror	Set to [Mirror] to enable the memory mirroring feature. See Chapter 9.	

[ ]: Factory-set

PCI Configuration

The following screen appears if you select "PCI Configuration" on the Advanced menu. Selecting a menu item preceded by symbol "➤" and pressing **Enter** allows the appropriate submenu to appear.

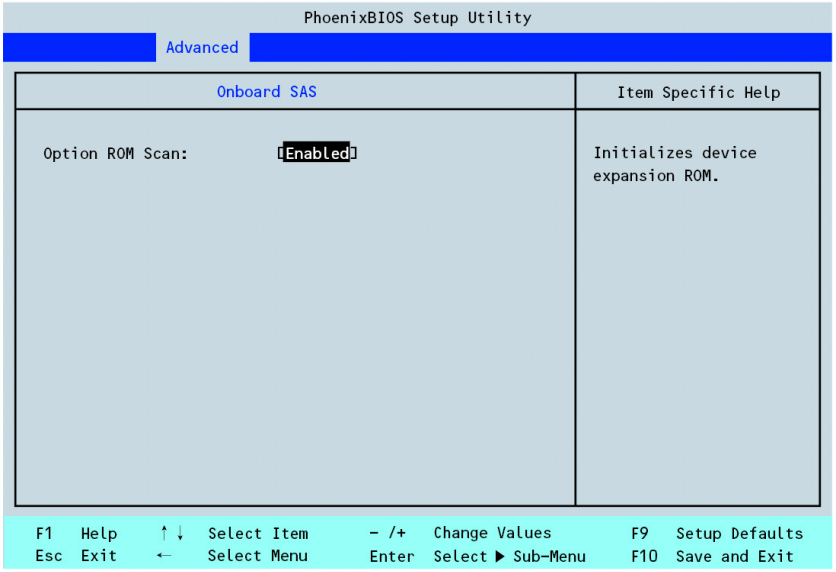

PhoenixBIOS Setup Utility
Advanced
PCI Configuration
Item Specific Help
▶ Onboard SAS
▶ Onboard NIC
Mezzanine Slot 1 Option ROM Scan: [Disabled]
Mezzanine Slot 2 Option ROM Scan: [Disabled]
Mezzanine Slot 3 Option ROM Scan: [Disabled]
Mezzanine Slot 4 Option ROM Scan: [Disabled]
Additional setup menus to configure onboard SAS controller.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Option	Parameter	Description	Your Setting
Mezzanine Slot 1-4 Option ROM Scan	Enabled [Disabled]	Indicates whether the expansion of BIOS of mezzanine card to be installed is enabled or disabled.	

[ ]: Factory-set

Onboard SAS

Select "Onboard SAS" on the PCI Configuration submenu to display the following screen.

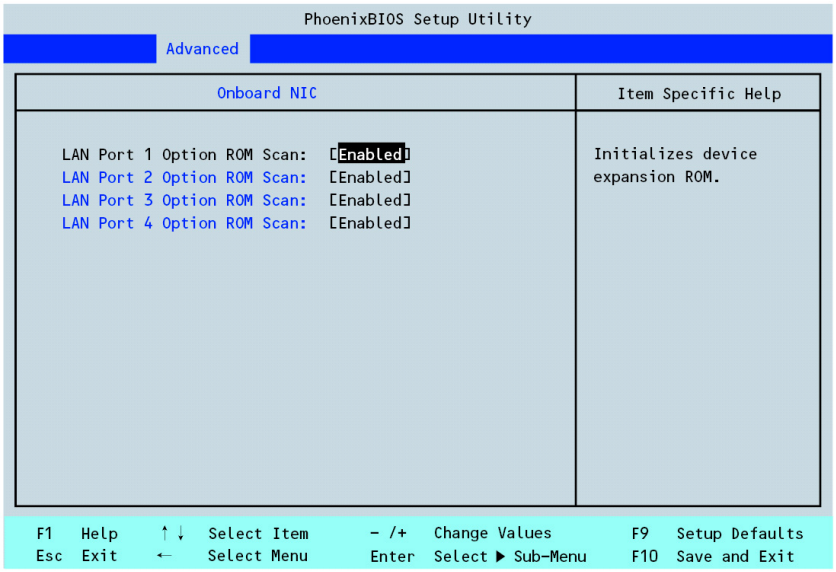

PhoenixBIOS Setup Utility
Advanced
Onboard SAS
Item Specific Help
Option ROM Scan:
[Enabled]
Initializes device expansion ROM.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Option	Parameter	Description	Your Setting
Option ROM Scan	[Enabled] Disabled	Indicates whether the expansion of BIOS of on-board SAS controller is enabled or disabled.	

[ ]: Factory-set

Onboard NIC

Select "Onboard NIC" on the PCI Configuration submenu to display the following screen.

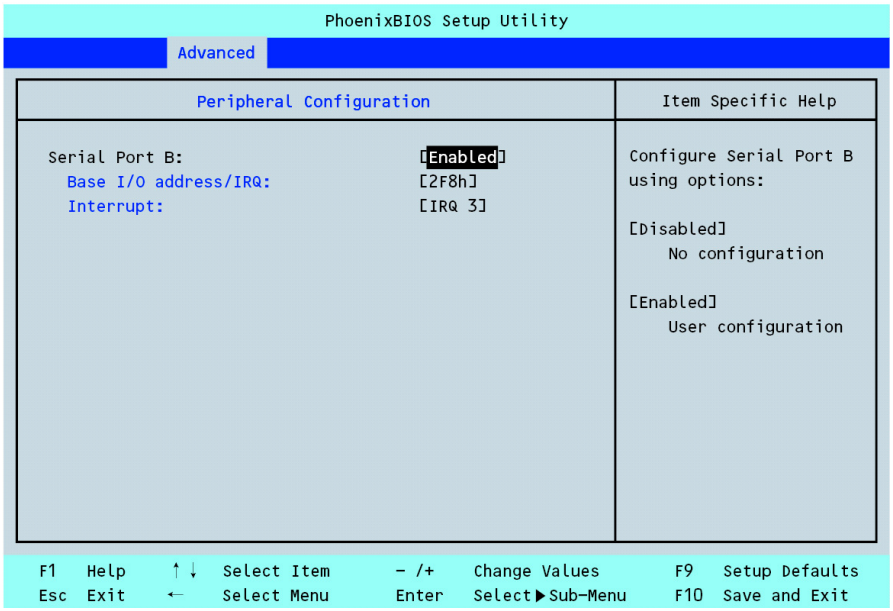

PhoenixBIOS Setup Utility
Advanced
Onboard NIC
Item Specific Help
LAN Port 1 Option ROM Scan: [Enabled]
LAN Port 2 Option ROM Scan: [Enabled]
LAN Port 3 Option ROM Scan: [Enabled]
LAN Port 4 Option ROM Scan: [Enabled]
Initializes device expansion ROM.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Option	Parameter	Description	Your Setting
LAN Port 1 - 4 Option ROM Scan	[Enabled] Disabled	Indicates whether the expansion of BIOS of LAN controller is enabled or disabled.	

[ ]: Factory-set

Peripheral Configuration

Select "Peripheral Configuration" on the Advanced menu to display the following screen.


PhoenixBIOS Setup Utility
Advanced
Peripheral Configuration
Item Specific Help
Serial Port B: [Enabled]
Base I/O address/IRQ: [2F8h]
Interrupt: [IRQ 3]
Configure Serial Port B using options:
[Disabled]
No configuration
[Enabled]
User configuration
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

See the table below for the items.

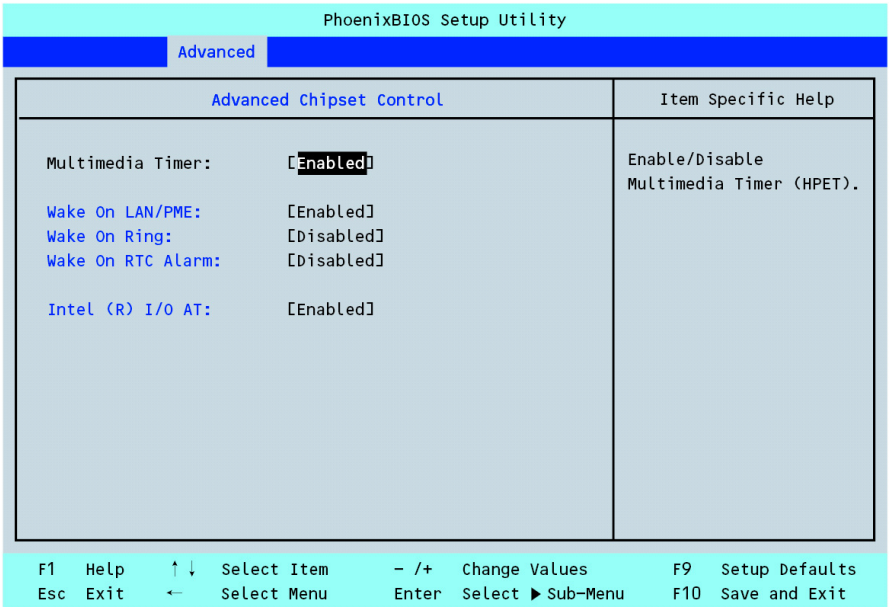
> **IMPORTANT:** Make sure to avoid any conflict in the interrupt requests or the base I/O addresses. If an assigned value is already used by another resource, it appears in yellow. Any yellow value must be re-assigned.

Option	Parameter	Description	Your Setting
Serial Port B	Disabled [Enabled]	Specify whether serial port B is enabled or disabled.	
Base I/O Address/IRQ	3F8h [2F8h] 3E8h 2E8h	Specify the base I/O address for serial port B.	
Interrupt	[IRQ 3] IRQ 4	Specify the interrupt for a serial port B.	

[ ]: Factory-set

Advanced Chipset Control

The following screen appears if you select "Advanced Chipset Control" on the Advanced menu. Selecting a menu item preceded by symbol "➤" and pressing **Enter** allows the appropriate submenu to appear.


PhoenixBIOS Setup Utility
Advanced
Advanced Chipset Control
Item Specific Help
Multimedia Timer: [Enabled]
Wake On LAN/PME: [Enabled]
Wake On Ring: [Disabled]
Wake On RTC Alarm: [Disabled]
Intel (R) I/O AT: [Enabled]
Enable/Disable Multimedia Timer (HPET).
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

See the table below for the items.

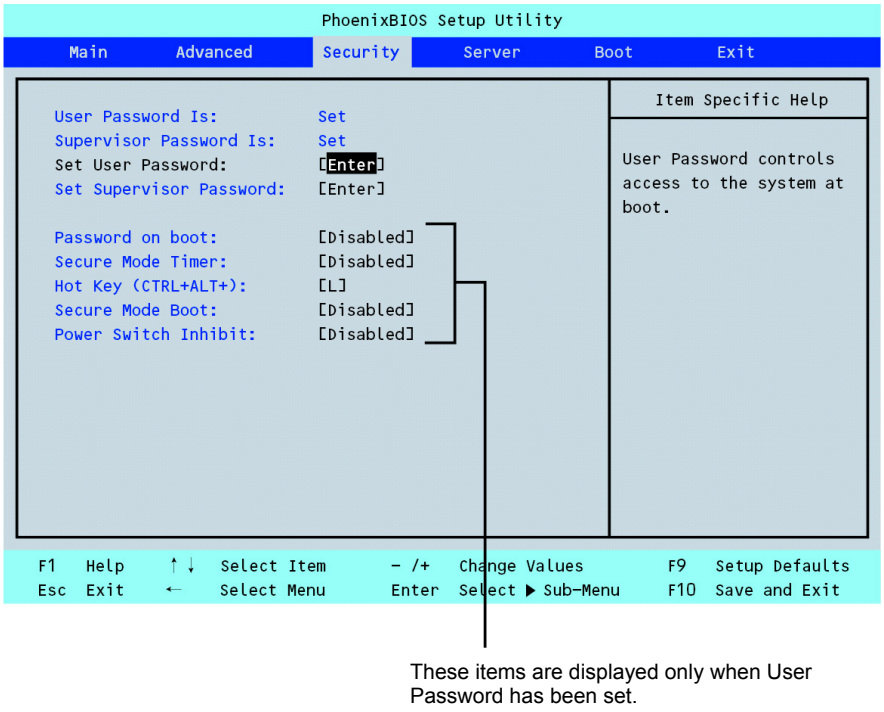
Option	Parameter	Description	Your Setting
Multimedia Timer	Disabled [Enabled]	Specify whether the timer supporting a multimedia is enabled or disabled.	
Wake On LAN/PME	Disabled [Enabled]	Specify whether the remote power-on feature through the device connected to the standard network card is enabled or disabled. To use Wake On LAN feature, set the link speed and duplex to [Auto].	
Wake On Ring	[Disabled] Enabled	Specify whether the remote power-on feature through a serial port (modem) is enabled or disabled.	
Wake On RTC Alarm	[Disabled] Enabled	Specify whether the remote power-on feature by using RTC alarm is enabled or disabled.	
Intel(R) I/OAT	Disabled [Enabled]	Specify whether the I/O acceleration technology of Intel is enabled or disabled.	

[ ]: Factory-set

NOTE: The Wake On LAN/PME feature is available only on LAN ports 1 through 3. Use of Wake On LAN/PME feature on LAN port 4 or any other option cards is not supported.

Security

Move the cursor onto "Security" to display the Security menu.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
User Password Is: Set
Supervisor Password Is: Set
Set User Password: [Enter]
Set Supervisor Password: [Enter]
Password on boot: [Disabled]
Secure Mode Timer: [Disabled]
Hot Key (CTRL+ALT+): [L]
Secure Mode Boot: [Disabled]
Power Switch Inhibit: [Disabled]
Item Specific Help
User Password controls access to the system at boot.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit
These items are displayed only when User Password has been set.

Select "Set Supervisor Password" or "Set User Password" and press **Enter** to display the pop-up screen. Note that User password setup is not available before Supervisor password setup.

Set a password on the pop-up screen. Enter a password of up to seven alphanumeric characters and symbols from the keyboard.

IMPORTANT:

- User password setup is not available before Supervisor password setup.
- Do not set any password before installing the OS.
- If you have forgotten your password, ask your service representative.

See the table below for items.

Option	Parameter	Description	Your Setting
Set User Password	Up to 7 alphanumeric characters	Press **Enter** to display the user password entry screen. With a user password, accessible SETUP menus are restricted. This option is available only if the Supervisor Password is specified.	
Set Supervisor Password	Up to 7 alphanumeric characters	Press **Enter** to display the supervisor password entry screen. With the supervisor password, all SETUP menus are available for access. This option is available only when you log into the SETUP utility with the password "Supervisor".	
Password on boot	[Disabled] Enabled	Specify whether to request a user password entry at boot-up. User password setup is required beforehand. It gives priority to "Secure Mode Boot" when "Secure Mode Boot" and "Password on boot" are set up in both.	
Secure Mode Timer	[Disabled] 1 min 2 min 5 min 10 min 20 min 60 min 120 min	Specify the period from no input from the keyboard or mouse to the point at which the system enters into the secure mode. If this item is set to [Disabled], the secure mode timer is unavailable.	
Hot Key (CTRL+ALT+)	[L] Z	Specify the key with which the secure mode is started. Press the selected key while pressing the **Ctrl** and **Alt** to start the secure mode.	
Secure Mode Boot	[Disabled] Enabled	Specify whether the system starts in the secure mode or not.	
Power Switch Inhibit	[Disabled] Enabled	Specify whether the POWER switch of the CPU blade is enabled or disabled. If Enabled, the POWER switch cannot be used to power off the CPU blade. (The forced shutdown, by pressing the POWER switch for 4 seconds or longer, is available.)	

[ ]: Factory-set

IMPORTANT: The Secure Mode is used to restrict an access from a user who has no user password.

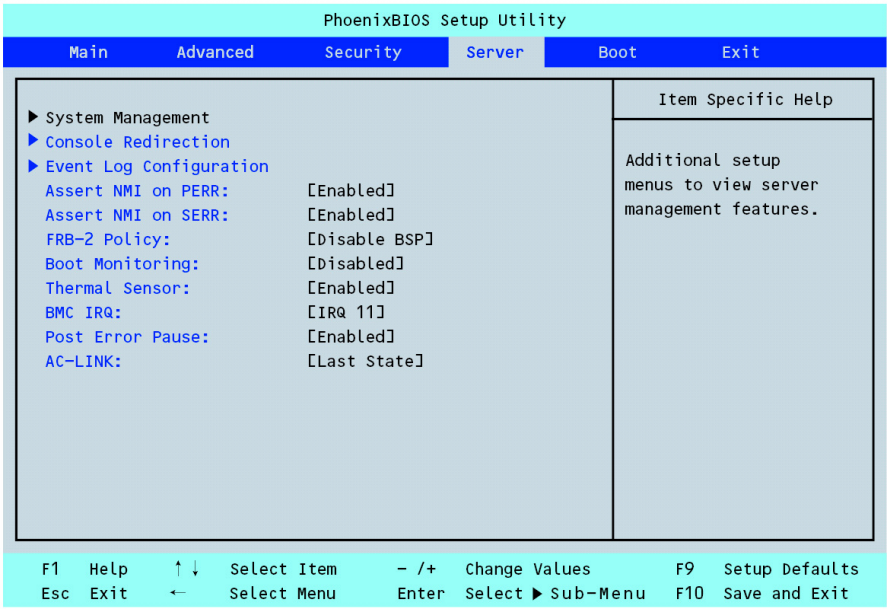
In Secure Mode, the POWER switch, DUMP switch, keyboard, and mouse are disabled, and the ScrollLock lamp, CapsLock lamp, and Numlock lamp on the keyboard flashes sequentially.

To exit from Secure Mode, enter the user password using the keyboard.

Server

The Server menu appears if you move the cursor to "Server."

The items which can be set on the Server menu and their functions are described below. For the setting, first select "System Management", "Console Redirection", or "Event Log Configuration" and press **Enter** to display the proper submenu.


PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
System Management
Console Redirection
Event Log Configuration
Assert NMI on PERR: [Enabled]
Assert NMI on SERR: [Enabled]
FRB-2 Policy: [Disable BSP]
Boot Monitoring: [Disabled]
Thermal Sensor: [Enabled]
BMC IRQ: [IRQ 11]
Post Error Pause: [Enabled]
AC-LINK: [Last State]
Item Specific Help
Additional setup menus to view server management features.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

See the table below for the items.

Option	Parameter	Description	Your Setting
Assert NMI on PERR	Disabled [Enabled]	When enabled, PCI bus parity error (PERR) can be detected and notified as NMI at occurrence of an error.	
Assert NMI on SERR	Disabled [Enabled]	When enabled, PCI bus system error (SERR) can be detected and notified as NMI at occurrence of an error.	
FRB-2 Policy	Disable FRB2 Timer [Disable BSP] Do Not Disable BSP Retry 3 Times	Set the policy to be applied to FRB level 2 timer.	

Option	Parameter	Description	Your Setting
Boot Monitoring	[Disabled] 5 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes 35 minutes 40 minutes 45 minutes 50 minutes 55 minutes 60 minutes	Indicates whether the boot monitoring feature is enabled or disabled and the timer value on booting. To use this feature, install NEC ESMPRO Agent. Do not use this feature if the system is booted from OS without installation of NEC ESMPRO Agent. Set this item to "Disabled" if ARCServe uses the Disaster Recovery Option.	
Thermal Sensor	Disabled [Enabled]	Indicates whether the temperature sensor monitoring function is enabled or disabled.	
BMC IRQ	Disabled [IRQ 11]	Indicates the IRQ of the BMC interrupt.	
Post Error Pause	Disabled [Enabled]	Indicates whether POST is aborted once at the end of POST if an error occurs during the execution of POST.	
AC-LINK	Stay Off [Last State] Power On	Indicates the AC-LINK feature. Shows the state when the power of the CPU blade is supplied again. See the table below.	

[ ]: Factory-set

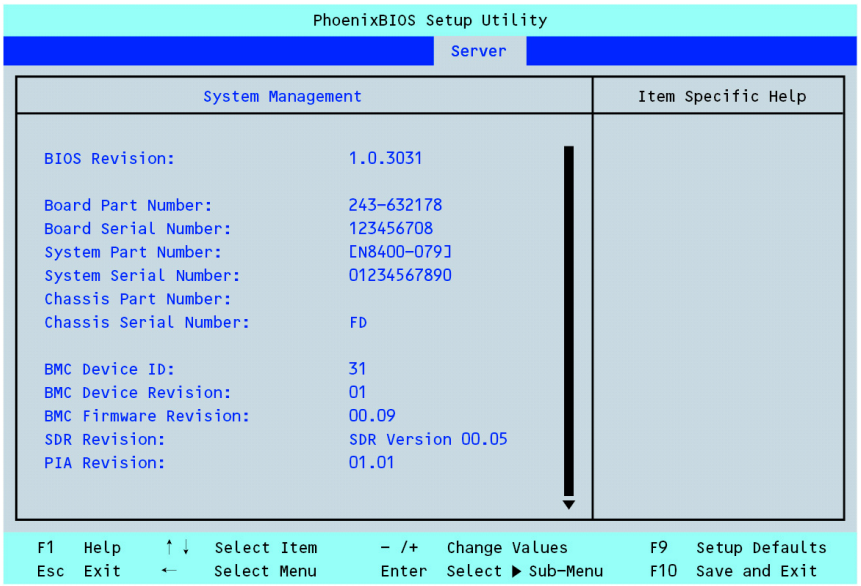
The table below shows the operation when the AC power to the server is turn off once and then on again, depending on the setting of "AC-LINK".

System status before AC power off	Setting of AC-LINK		
	Stay Off	Last State	Power On
Operating	Off	On	On
Aborting (DC power being off also)	Off	Off	On
Forced shutdown*	Off	Off	On

* Press the POWER switch continuously for four seconds or longer. This forcibly turns off the power.

System Management

The following screen appears if you select "System Management" on the Server menu and press **Enter**.


PhoenixBIOS Setup Utility
Server
System Management
Item Specific Help
BIOS Revision: 1.0.3031
Board Part Number: 243-632178
Board Serial Number: 123456708
System Part Number: [N8400-079]
System Serial Number: 01234567890
Chassis Part Number:
Chassis Serial Number: FD
BMC Device ID: 31
BMC Device Revision: 01
BMC Firmware Revision: 00.09
SDR Revision: SDR Version 00.05
PIA Revision: 01.01
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

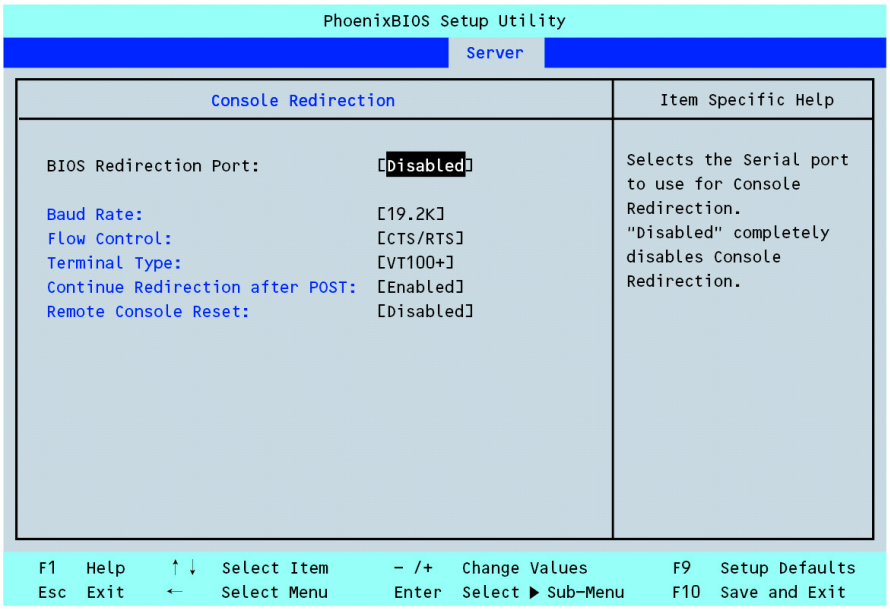
See the table below for the items.

Option	Parameter	Description	Your Setting
BIOS Revision	–	Indicates the version of BIOS. (View only)	
Board Part Number	–	Indicates the part number of the mother board. (View only)	
Board Serial Number	–	Indicates the serial number of the mother board. (View only)	
System Part Number	–	Indicates the code of the server. (View only)	
System Serial Number	–	Indicates the Indicates the serial number of the server. (View only)	
Chassis Part Number	–	Indicates the part number of the chassis. (View only)	
Chassis Serial Number	–	Indicates the serial number of the chassis. (View only)	
BMC Device ID	–	Indicates the device ID of BMC (Baseboard Management Controller.) (View only)	
BMC Device Revision	–	Indicates the revision of BMC. (View only)	
BMC Firmware Revision	–	Indicates the firmware revision of BMC. (View only)	
SDR Revision	–	Indicates the revision of SDR (Sensor Data Record). (View only)	
PIA Revision	–	Indicates the revision of PIA (Platform Information Area). (View only)	

[ ]: Factory-set

Console Redirection

The following screen appears if you select "Console Redirection" on the Server menu and press **Enter**.


PhoenixBIOS Setup Utility
Server
Console Redirection
Item Specific Help
BIOS Redirection Port: [Disabled]
Baud Rate: [19.2K]
Flow Control: [CTS/RTS]
Terminal Type: [VT100+]
Continue Redirection after POST: [Enabled]
Remote Console Reset: [Disabled]
Selects the Serial port to use for Console Redirection. "Disabled" completely disables Console Redirection.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

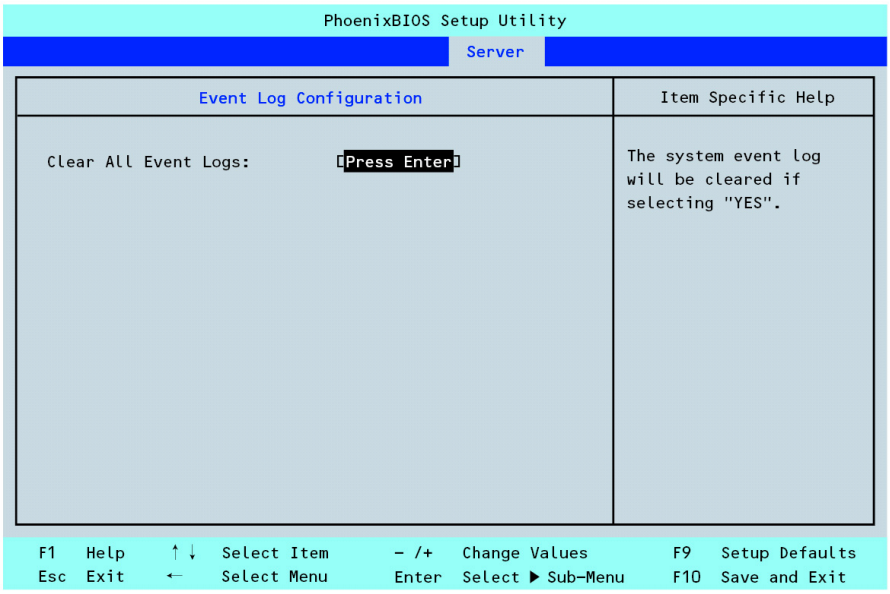
See the table below for the items.

Option	Parameter	Description	Your Setting
BIOS Redirection Port	[Disabled] Serial Port B	Specify the serial port to which a hardware console is connected.	
Baud Rate	9600 [19.2k] 57.6k 115.2k	Specify the baud rate for the interface with hardware consoles.	
Flow Control	None XON/XOFF [CTS/RTS] CTS/RTS+CD	Specify the flow control method.	
Terminal Type	PC ANSI [VT100+] VT-UTF8	Specify the type of remote console.	
Continue Redirection after POST	Disabled [Enabled]	Specify whether the console output after completion of POST is enabled or disabled. This menu appears only when "BIOS Redirection Port" is set to "Serial Port B".	
Remote Console Reset	[Disabled] Enabled	Specify whether the reset from remote console is enabled or disabled.	

[ ]: Factory-set

Event Log Configuration

The following screen appears if you select "Event Log Configuration" on the Server menu and press **Enter**.


PhoenixBIOS Setup Utility
Server
Event Log Configuration
Item Specific Help
Clear All Event Logs:
[Press Enter]
The system event log will be cleared if selecting "YES".
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

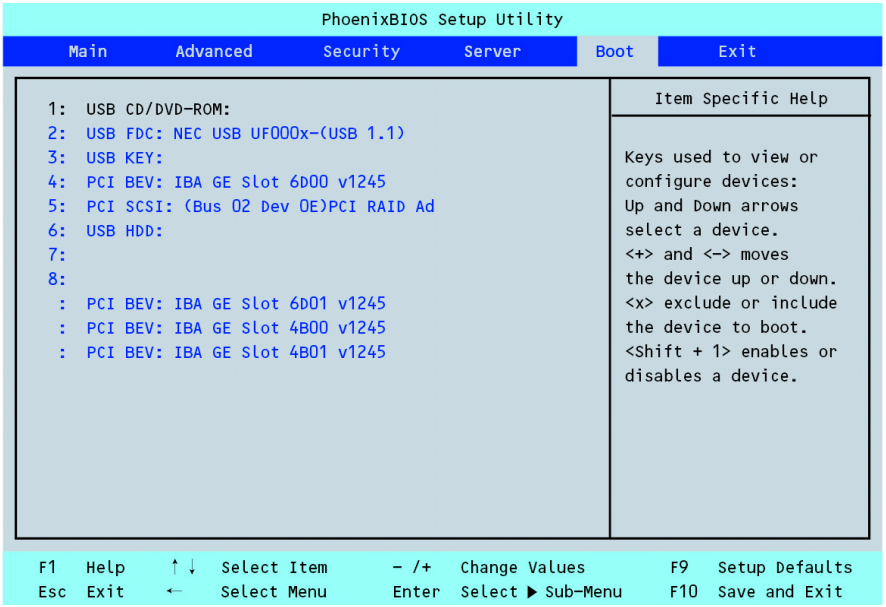
See the table below for the items.

Option	Parameter	Description	Your Setting
Clear All Event Logs	–	Press **Enter** to clear the system event log.	

[ ]: Factory-set

Boot

Move the cursor onto "Boot" to display the Boot menu. The CPU blade searches for devices in the order set in this menu on booting. Finding the boot software, the CPU blade starts the software.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
1: USB CD/DVD-ROM:
2: USB FDC: NEC USB UFOOOx-(USB 1.1)
3: USB KEY:
4: PCI BEV: IBA GE Slot 6D00 v1245
5: PCI SCSI: (Bus 02 Dev 0E)PCI RAID Ad
6: USB HDD:
7:
8:
: PCI BEV: IBA GE Slot 6D01 v1245
: PCI BEV: IBA GE Slot 4B00 v1245
: PCI BEV: IBA GE Slot 4B01 v1245
Item Specific Help
Keys used to view or configure devices:
Up and Down arrows select a device.
<+> and <-> moves the device up or down.
<x> exclude or include the device to boot.
<Shift + 1> enables or disables a device.
F1 Help ↑ ↓ Select Item - /+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

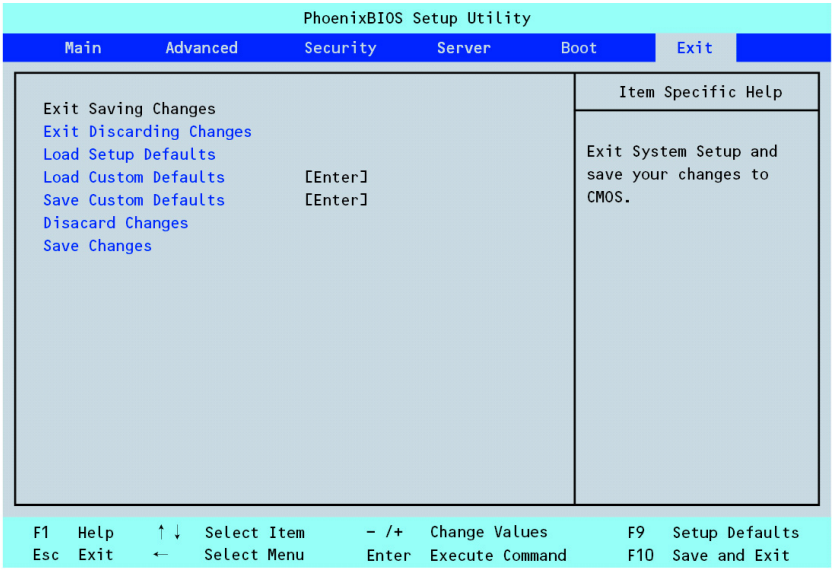
The priority of the boot devices can be changed by using the ↑, ↓, **+**, and **-** keys. Move the cursor to the desired device with the ↑ or ↓ key and change the priority with the **+** or **-** key.

The boot device priority is factory-set in the following order.

- CD/DVD-ROM Drive (Optical drive)
- Removable Device (USB floppy disk drive)
- Removable Device (USB or flash memory of 1GB or less capacity)
- IBA GE Slot 0C00 v1245 (LAN1)
- Hard Drive
- IBA GE Slot 6001 v1245 (LAN2)
- IBA GE Slot 4B00 v1245 (LAN3)
- IBA GE Slot 4B01 v1245 (LAN4)

Exit

Move the cursor onto "Exit" to display the Exit menu.



The following describes each option on the Exit menu:

Exit Saving Changes

Select this item to terminate SETUP after saving the newly selected information in CMOS (non-volatile memory). The selection of "Exit Saving Changes" causes the confirmation screen to appear.

If you select "Yes," SETUP is terminated with the newly selected information saved in CMOS (non-volatile memory). Then the CPU blade automatically reboots the system.

Exit Discarding Changes

Select this item to terminate SETUP without saving the newly selected information in CMOS (non-volatile memory).

Selecting "No" allows SETUP to be terminated without storage of the modified information. If you select "Yes," SETUP is terminated with the modified information saved in CMOS. Then the CPU blade automatically reboots the system.

Load Setup Defaults

Select this item to return all the values of SETUP to the default values. Selecting "Load Setup Defaults" causes the confirmation screen to appear.

Select "Yes" to return the values to the default values. Select "No" to go back to the Exit menu screen.

> **IMPORTANT:** The values of SETUP at the shipment may be different from their default values depending on the model of the CPU blade. It is necessary to set the values meeting the environment in which the CPU blade is used referring to the models.

Load Custom Defaults

Select this item and press **Enter** to load the stored custom default values.

Save Custom Defaults

Select this item and press Enter to save parameters set currently as the custom default values. After the storage, the Load Custom Defaults menu appears.

Discard Changes

Select this item to return the values modified currently to the previous values before saving the values to CMOS. Selecting "Discard Changes" causes the confirmation screen to appear.

Select "Yes" to discard the newly selected information and return to the previous values.

Save Changes

Select this item to save the newly selected information to CMOS (non-volatile memory) without the termination of SETUP. Selecting "Save Changes" causes the confirmation screen to appear.

Select "Yes" to save the newly selected information to CMOS (non-volatile memory)

RAID SYSTEM CONFIGURATION

This section describes how to use the internal hard disk drives as RAID System by Onboard RAID Controller (MegaRAID ROMB).

About the optional RAID Controller, refer to the documents provided with optional RAID Controller.

RAID

Overview of RAID System

What is RAID (Redundant Array of Inexpensive Disks)?

RAID is an abbreviation for "Redundant Array of Inexpensive Disks". The RAID technology allows more than one hard disk drive (HDD) to be handled collectively.

In actual, RAID can configure more than one HDDs as a single array (disk group) to operate the HDDs effectively. This can bring higher performance than a single HDD of a large capacity.

The Onboard RAID Controller (MegaRAID ROMB) has a feature to divide a single disk group into several logical drives (virtual disks). Operating system recognizes these virtual disks as if it were a single hard disk drive. Operating system accesses to more than one hard disk drive configuring a disk group in parallel.

Some RAID levels can recover data from remaining data and parity by using rebuild feature if an error occurs in a single HDD. This can provide high reliability for the system.

RAID Levels

The record mode enabling the RAID feature includes several levels. Among the levels, the Onboard RAID Controller (MegaRAID ROMB) supports RAID levels 0, 1, and 5. The number of hard disk drives required to create a disk group varies depending on the RAID level as shown in the table below.

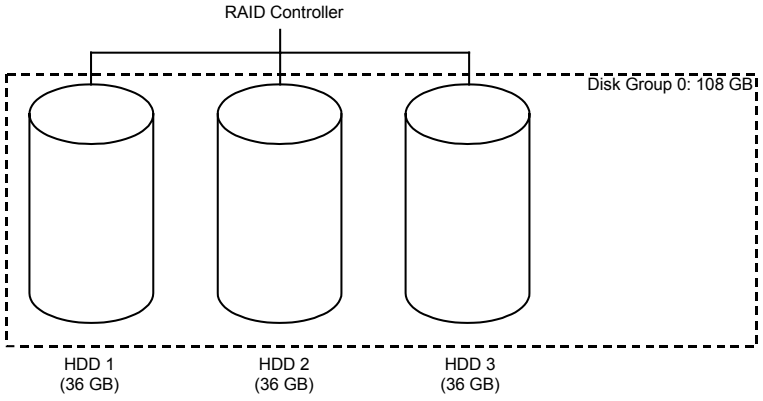
RAID level	Number of required HDDs	
	Min.	Max.
RAID 0	1	4
RAID 1	2	2
RAID 5	3	4

NOTE: For details of the RAID levels, see "RAID Levels" described later in this chapter.

Disk Group

A disk group is configured with more than one HDDs.
The allowable number of disk groups is equal to the number of HDDs.

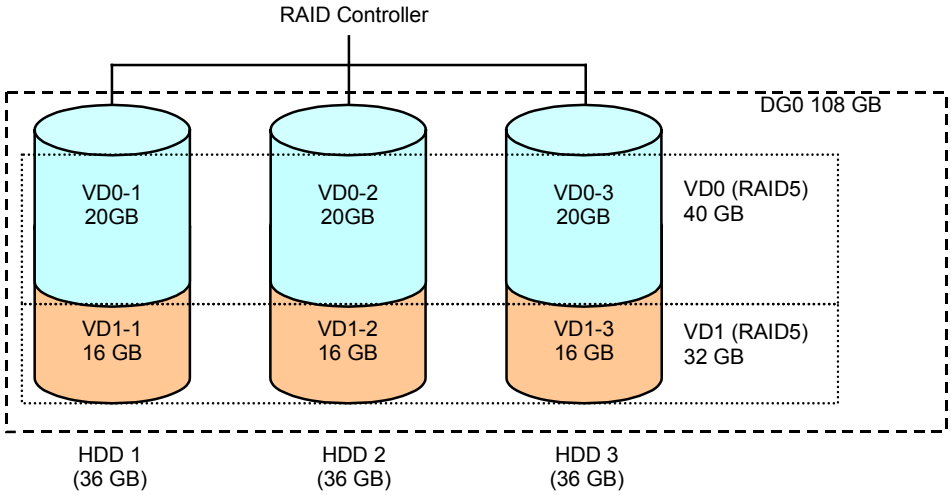
The figure below shows a sample configuration. The three HDDs are connected to the Onboard RAID Controller (MegaRAID ROMB), creating one disk group (DG).



Virtual Disk

Virtual disk is a logical drive defined in disk group. It is recognized as a physical drive by OS. The allowable number of virtual disks is up to 16 per disk group, or up to 64 per controller.

The figure below shows a sample configuration in which the Onboard RAID Controller (MegaRAID ROMB) is connected with three HDDs, creating one Disk Group. Two RAID5 virtual disks (VD) are defined in the Disk Group.



Parity

The parity means redundant data. A single set of redundant data is created from the data saved in more than one HDD.

The created redundant data is used for data recovery when a HDD is defected.

Hot-Swap

The hot-swap enables a HDD to be removed (or replaced) under system operation.

Hot-Spare

The hot-spare is prepared as an auxiliary HDD substituting for a defected HDD included in a logical drive which is configured at a redundant RAID level. Detecting a HDD fault, the system disconnects the HDD (or makes it offline) and starts rebuild using the hot-spare.

RAID Levels

Characteristics of RAID Levels

The table below lists the characteristics of the RAID levels.

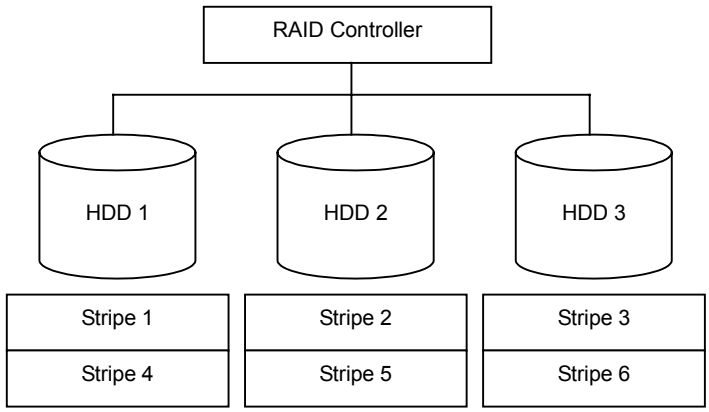
Level	Function	Redundancy	Characteristics
RAID0	Striping	No	• Data read/write at the highest rate • Largest capacity • Capacity: (capacity of single HDD) × (number of HDDs)
RAID1	Mirroring	Yes	• Two HDDs required • Capacity: capacity of single HDD
RAID5	Striping of both data and redundant data	Yes	• Three or more HDDs required • Capacity: (capacity of single HDD) × ((number of HDDs) - 1)

RAID0

In RAID0, data to be recorded is distributed to HDDs. The mode is called "striping".

In the figure below, data is recorded in stripe 1 (disk 1), stripe 2 (disk 2), and stripe 3 (disk 3)… in the order. Because RAID0 allows all HDDs to be accessed collectively, it can provide the best disk access performance.

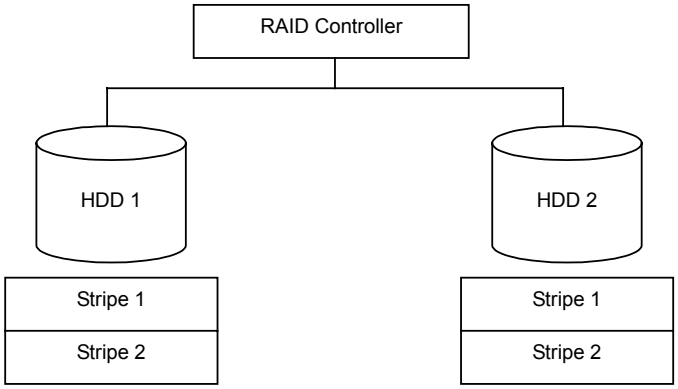
IMPORTANT: RAID0 cannot have data redundancy. If a HDD is defected, the data saved in the HDD cannot be recovered.



RAID1

In the RAID1 level, data saved in a HDD is written to another HDD without change. The mode is called "mirroring".

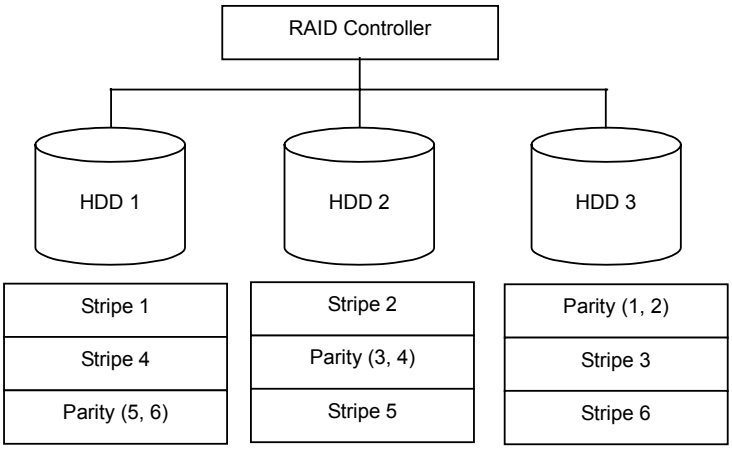
When data is written onto a single HDD, the same data is written onto another HDD. If either of the HDDs is defected, the other HDD containing the same data can substitute for the defected HDD. Thus the system can continue to operate without interruption.



RAID5

In RAID5, data is distributed to HDDs by striping and, at the same time, the parity (redundant data) is distributed to the HDDs. This mode is called "striping with distributed parity".

Each of stripe x, stripe x+1, and parity (x, x+1) created from stripe x and stripe x+1 is written onto a specific HDD. Accordingly, the total capacity assigned to the parity is just the same as the capacity of a single HDD. If any one of the HDDs configuring a logical drive is defected, data is still available with no problems.



Features of On-board RAID Controller (MegaRAID ROMB)

This section describes the features of the on-board RAID controller (MegaRAID ROMB).

Rebuild

If a HDD is defected, the rebuild feature can recover the data in the defected HDD. The rebuild can be applied to redundant virtual disks in the RAID1 or RAID5 level.

Manual Rebuild

The manual rebuild can be performed by using Universal RAID Utility or WebBIOS, the management utility of the on-board RAID controller (MegaRAID ROMB). Select a HDD and start the rebuild manually.

Auto Rebuild

The on-board RAID (MegaRAID ROMB) can automatically start the rebuild without use of any utility such as Universal RAID Utility.

The auto rebuild includes two types as follows:

- Standby rebuild

  Automatic rebuild by using hot-spare disks. In the configuration including hot-spare disks, the rebuild is performed automatically if a HDD assigned to a virtual disk is defected.

- Hot-swap rebuild

  Automatic rebuild by hot-swapping defected HDD.

IMPORTANT: Note the following for the rebuild:

- The HDD used for rebuild should have the same capacity, rotation speed, and standard as the defected HDD.
- During rebuild, the processing rate is decreased due to much load.
- During rebuild, do not shutdown or reboot the server. If the server is shutdown by an unforeseen accident such as power interruption, turn on the power again as soon as possible. The rebuild is automatically restarted.
- The interval from the removal of the defected HDD to the installation of a substitute HDD should be 60 sec or longer.
- If the hot-swap rebuild does not operate, perform the manual rebuild.

Patrol Read

The Patrol Read gives the read & verify test in the entire area of HDDs. It can be performed for all HDDs assigned to virtual disks and hot-spare disks.

The Patrol Read allows subsequent defects of HDDs to be detected and repaired.

For HDDs configuring redundant virtual disks or those assigned to hot-spare disks, error sectors detected during Patrol Read can be repaired.

IMPORTANT: Note the following for the patrol read:

- Patrol Read feature is factory-set to "Enabled".
- To utilize Patrol Read, Universal RAID Utility must be installed.
- If the system is restarted, Patrol Read is aborted. After restart of the system, Patrol Read runs from the first step (top of HDD).

Check Consistency

The Check Consistency is used to check consistency among virtual drives. It is available for redundant virtual drives in the RAID1 or RAID5 level.

Check Consistency can be performed through WebBIOS or Universal RAID Utility.

Check Consistency performs not only consistency check but also repair of error sectors. Accordingly, it can be used as preventive maintenance.

IMPORTANT: Note the following for Check Consistency:

- During Check Consistency, the processing rate is decreased due to much load.
- If the system is restarted, the Check Consistency is aborted. However, the Check Consistency resumes after restart.
- To perform scheduled execution of Consistency Check, use WebBIOS, not the Universal RAID Utility.

Background Initialize

The server does not support Background Initialize feature.

Reconstruction

The Reconstruction feature is used to change configuration and/or RAID level of existing virtual disk. The Reconstruction contains the following three features, however, the onboard RAID Controller (MegaRAID ROMB) supports "Migration with addition" only.

IMPORTANT: You can use WebBIOS for Reconstruction. Universal RAID Utility does not support Reconstruction.

Removed physical drive

Unsupported.

Migration only

Unsupported.

Migration with addition

Use this feature to add HDDs to existing virtual disk. The execution patterns are as shown below (α: Number of HDDs to be added).

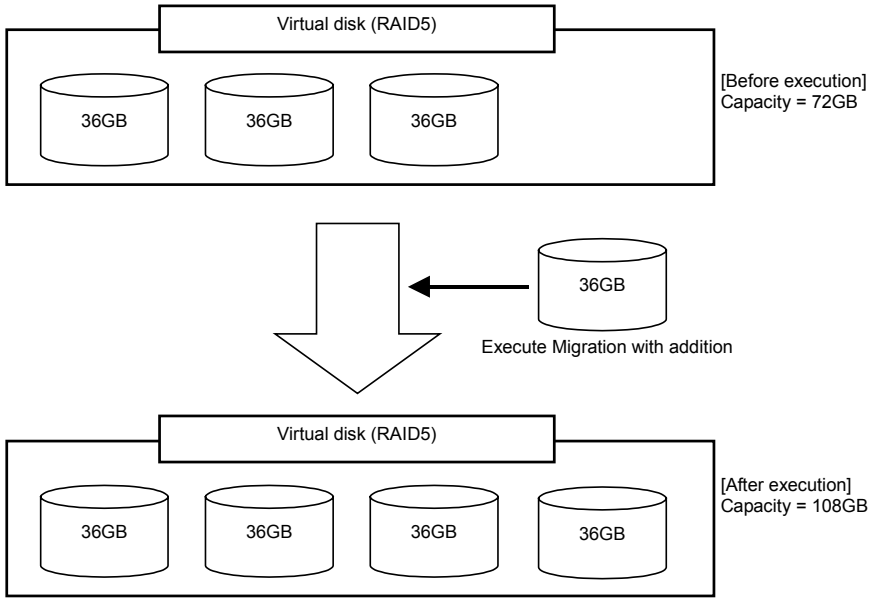
Before execution		After execution		Description
RAID level	Number of HDDs	RAID level	Number of HDDs	
RAID0	x	RAID0	x+α	Capacity increased: equivalent to α HDDs
RAID0	1	RAID1	2	Capacity remains unchanged.
RAID0	x	RAID5	x+α	Capacity increased: equivalent to α-1 HDDs
RAID1	2	RAID0	2+α	Capacity increased: equivalent to α+1 HDDs
RAID1	2	RAID5	2+α	Capacity increased: equivalent to α HDDs
RAID5	x	RAID0	x+α	Capacity increased: equivalent to α+1 HDDs
RAID5	x	RAID5	x+α	Capacity increased: equivalent to α HDDs

IMPORTANT: Note the following for the Reconstruction:

- Be sure to make backup copy of data and perform Consistency Check before starting Reconstruction.
- The Reconstruction is disabled in the configuration where several virtual disks are defined in one disk group
- During Reconstruction, the processing rate is decreased due to much load.
- The Reconstruction can be performed for the degraded or partially degraded virtual disk. However, it is recommended to execute Rebuild to recover the virtual disk, then execute Reconstruction.
- During Reconstruction, do not shutdown or reboot the server. If the server is shutdown by an unforeseen accident such as power interruption, turn on the power again as soon as possible. The Reconstruction is automatically restarted.

Ex: Migration with addition for RAID5 virtual disk

The figure below shows an example of adding a single 36GB HDD to a RAID5 virtual disk configured with three 36GB HDDs.



Before Using WebBIOS

Read the following sections describing supported functions and precautions before using "WebBIOS".

Supported Functions

- Indication of model name and capacity of hard disk drive
- Indication of HDD allocation status
- Creation of virtual disk
  - Setting of RAID level
  - Setting of Stripe Block size
  - Setting of Read Policy/Write Policy/IO Policy
- Indication of configuration information and status of virtual disk
- Removal of virtual disk
- Clearing of configuration
- Execution of initialization
- Execution of Consistency Check
- Execution of manual rebuild
- Execution of reconstruction

Notes on Creating Virtual Disk

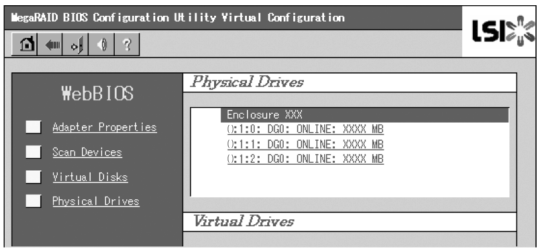
- The HDDs configuring the disk group should have the same capacity and rotation speed.
- Be sure to execute Consistency Check after creating VD.
- When installing an OS in VD under the onboard RAID Controller (MegaRAID ROMB), create a VD dedicated to OS installation.
- WebBIOS cannot be handled via remote console functions of NEC DianaScope.
- The physical drive numbers shown in WebBIOS and those shown in Universal RAID Utility are identified as follows.
  - WebBIOS

    Enclosure number and Slot number shown in Physical Drives box*

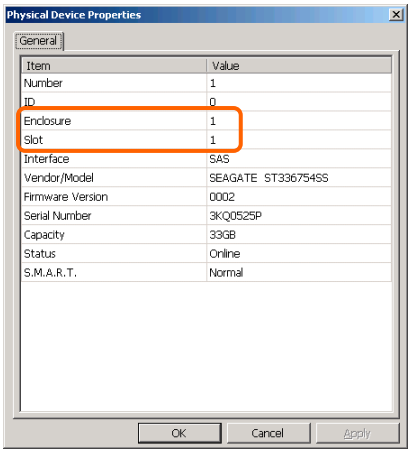
    * "X:X:X" shown in Physical Drives box represents Connector number:Enclosure number:Slot number. With this server, the Connector number is not supported, thus, it is always indicated as "()". The Enclosure Number is always "1". The Slot number represents a slot number of disk bay.
  - Universal RAID Utility

    Enclosure number and Slot number shown in Physical Device Properties

  Note that the slot numbers shown in Physical Drives box of WebBIOS are represented by numbers beginning with 0, but those in Universal RAID Utility are numbers beginning with 1.



Physical Drives View of WebBIOS

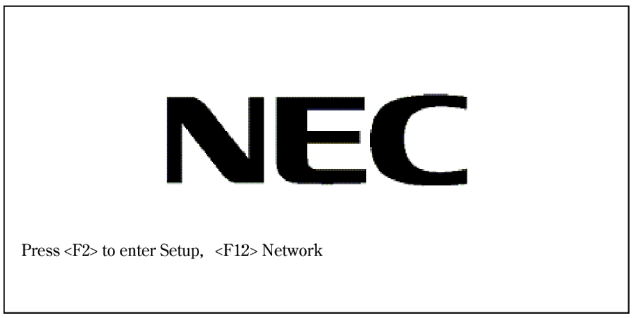


Property of Physical Device in Universal RAID Utility

Using WebBIOS

Starting WebBIOS

1. Press **Esc** when the screen as shown below appears after powered on the server.



2. Press **Ctrl** + **H** on POST screen to start WebBIOS.

POST screen image (with no virtual disk assigned)

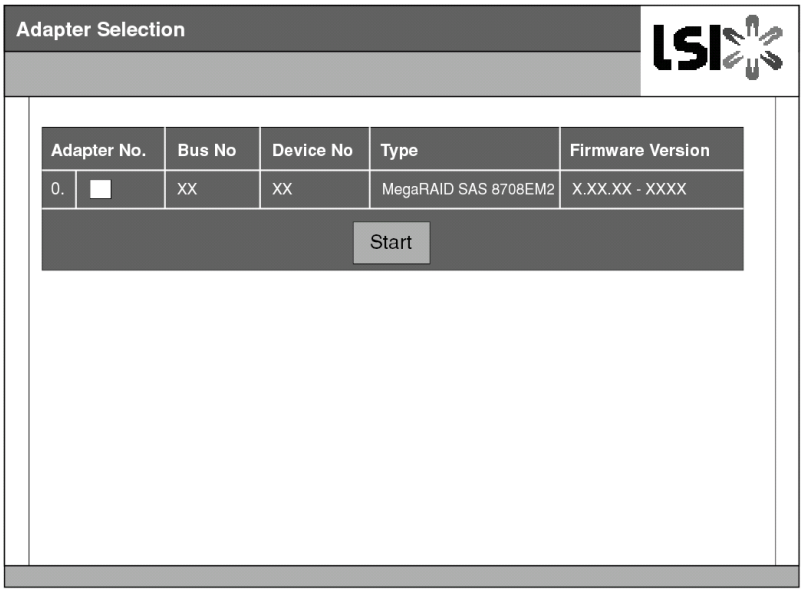
```
LSI MegaRAID SAS-MFI BIOS Version XXXX (Build MMM DD, YYYY)
Copyright (c) xxxx LSI Corporation
HA -X (Bus X Dev X) MegaRAID SAS PCI 8708EM2
FW package: X.X.X-XXXX

X Logical Drive(s) found on the host adapter.
X Logical Drive(s) handled by BIOS
Press <Ctrl> <H> for WebBIOS
```

IMPORTANT:

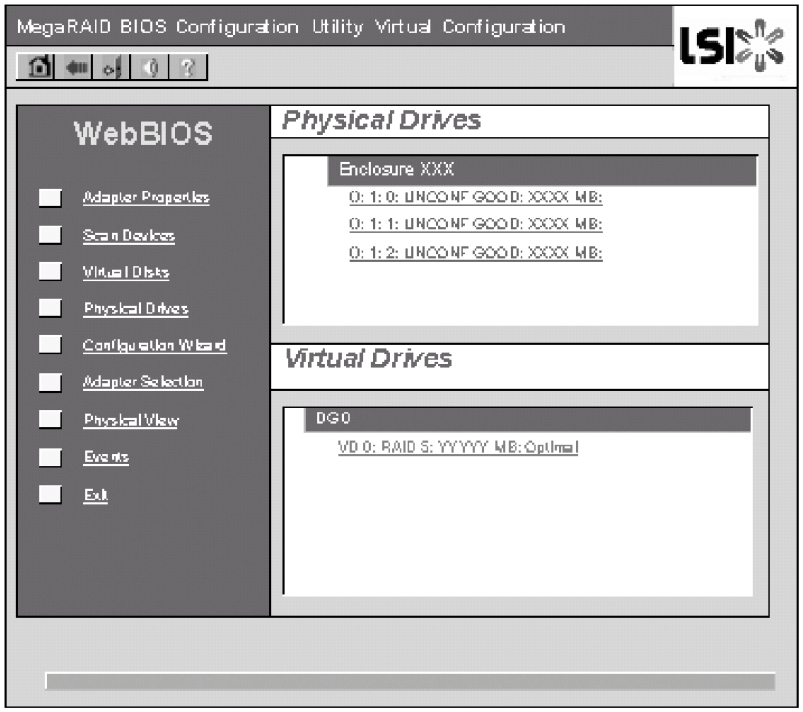
- Do not press unnecessary key such as **Pause** during POST.
- If you fail to press **Ctrl** + **H** and the system proceeds without displaying the WebBIOS main menu (shown on the next page), reboot the system, and press **Ctrl** + **H** on POST screen.

Main Menu

Shown below is [Adapter Selection] screen that appears first on WebBIOS. Select a controller to operate WebBIOS, and click [Start].



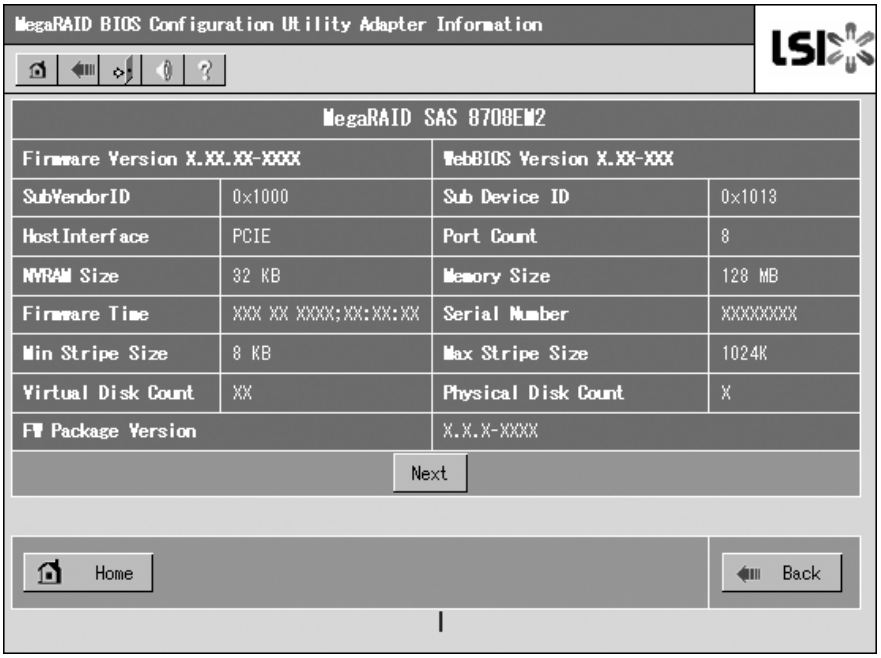
When the adapter is selected on [Adapter Selection], the WebBIOS Top Menu appears.



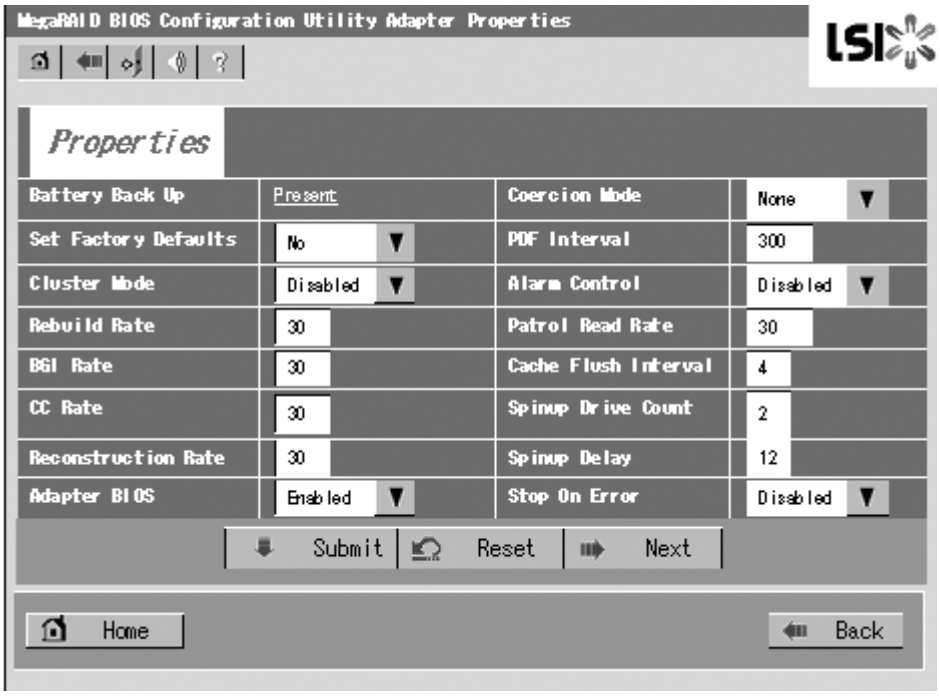
IMPORTANT: "X:X:X" shown in Physical Drives box represents Connector number:Enclosure number:Slot number. With this server, the Connector number is not supported, thus, it is always indicated as "()". The Enclosure number is always "1". The Slot number represents a slot number of disk bay.

Adapter Properties

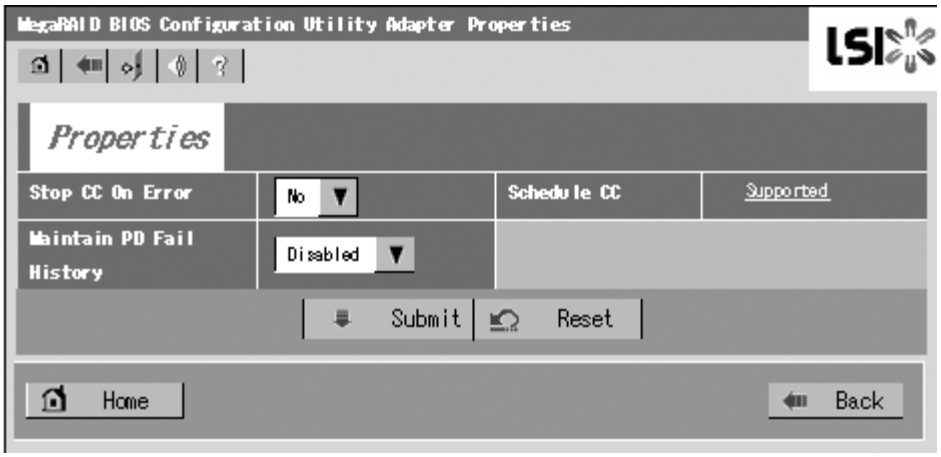
When you click [Adapter Properties] on WebBIOS Top Menu, the configuration information is displayed.



Click [Next] to see the detailed settings of this controller.



The detailed settings is continued to the next page. Click [Next] to view more information.



Default settings and their explanation

Item	Default	Description	Change
Battery Backup	Present None	Displays Properties. • When battery is installed: Present • When battery is not installed: None	–
Set Factory Defaults	[No] Yes	Restores vendor's factory defaults.	Prohibited *1
Cluster Mode	Disabled	–	Prohibited
Rebuild Rate	30	Recommended value: 30	Permitted
Patrol Read Rate	30	Recommended value: 30	Permitted
BGI Rate	30	Recommended value: 30	Permitted
CC Rate	30	Recommended value: 30	Permitted
Reconstruction Rate	30	Recommended value: 30	Permitted
Adapter BIOS	[Enabled] Disabled	–	Prohibited
Coercion Mode	[None] 128MB-way 1GB-way	–	Prohibited
PDF Interval	300	–	Prohibited
Alarm Control	[Disabled] Enabled Silence	Disabled: Does not issue an alarm.	Prohibited *2
Cache Flush Interval	4	–	Prohibited
Spinup Drive Count	2	–	Prohibited
Spinup Delay	12	–	Prohibited
StopOnError	[Disabled] Enabled	–	Prohibited
Stop CC On Error	[No] Yes	Specify the operation at error detection in Consistency Check. No: Recover and resume. Yes: Abort	Permitted
Maintain PD Fail History	[Disabled] Enabled	–	Prohibited
Schdule CC	Supported	Set the scheduled consistency check.	Permitted

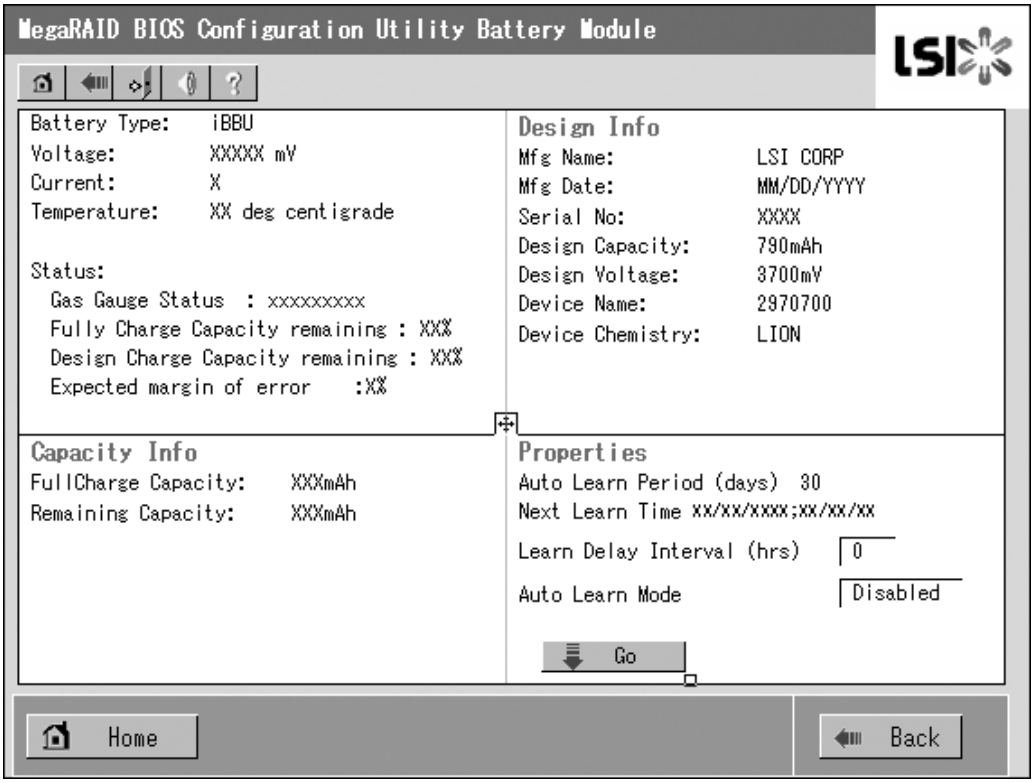
*1 Do not perform "Set Factory Defaults". If performed, the NEC's factory-set value will no longer be restored.

*2 Enabling "Alarm Control" does not emit beep sound at occurrence of an error.

How to change setting value

On [Adapter Properties] screen, change a parameter to desired value, and then click [Submit] at the center of the screen to determine the new value.

The status of "Battery Backup" is indicated as "Present". Clicking [Present] opens the Battery Status screen as shown below.



IMPORTANT: You cannot change values for "Auto Learn Period", "Next Learn Time", and "Learn Delay Interval".

NOTES:

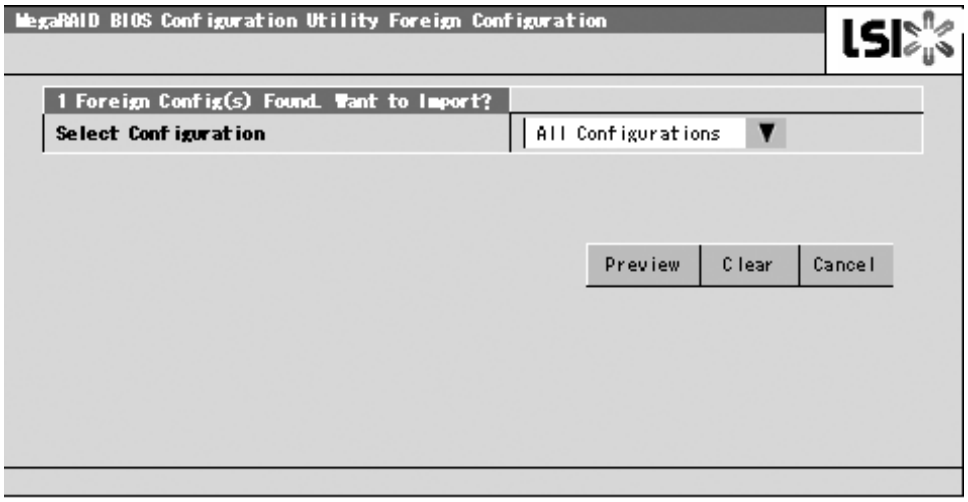
- Status field shows "Charging" when the battery is in charged status. It shows "Discharging" when the battery is in discharged status.
- When powering on the server after replaced the battery, the Status may not immediately change to "Charging". In that case, power on the server for several hours, and check "Status" again.

Scan Devices

When you click [Scan Devices] on WebBIOS Top Menu, the HDDs connected are detected again. Use this feature when you have installed a new HDD additionally while the WebBIOS is running.

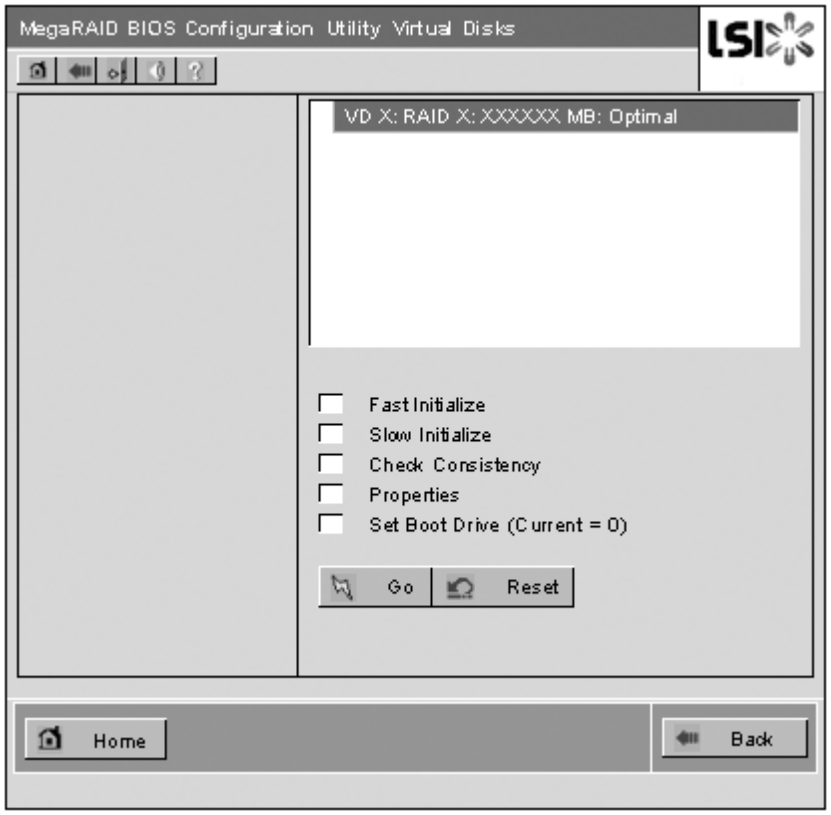
IMPORTANT:

- If the newly connected HDD contains another configuration information, [Foreign Configuration] screen as shown below appears. To use the HDD as new one, click [Clear] to clear the configuration information in HDD.
- If you use Universal RAID Utility to configure a RAID system using the newly connected HDD containing another configuration information, first clear another configuration information using this Scan Devices feature.
  (*) Universal RAID Utility does not have this feature.



Virtual Disks

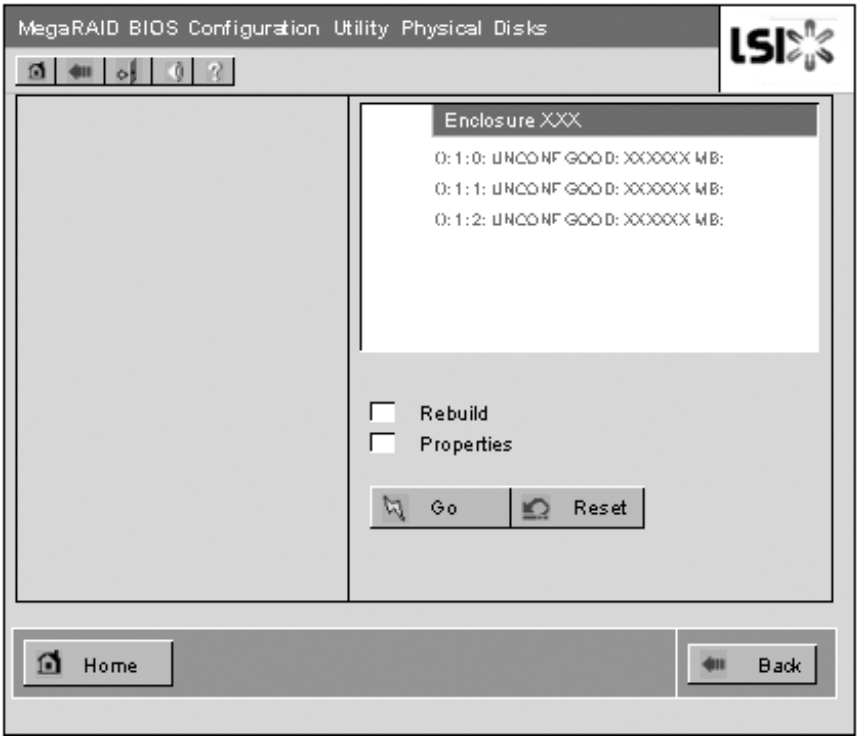
When you click [Virtual Disks] on WebBIOS Top Menu, the screen for operating the VD that has already been configured.



IMPORTANT: If no hard disk drive exists, the upper right column of the screen will be blank. Use this menu only when a hard disk drive exists.

Physical Drives

When you click [Physical Disks] on WebBIOS Top Menu, the screen for operating the physical drive (HDD) appears.

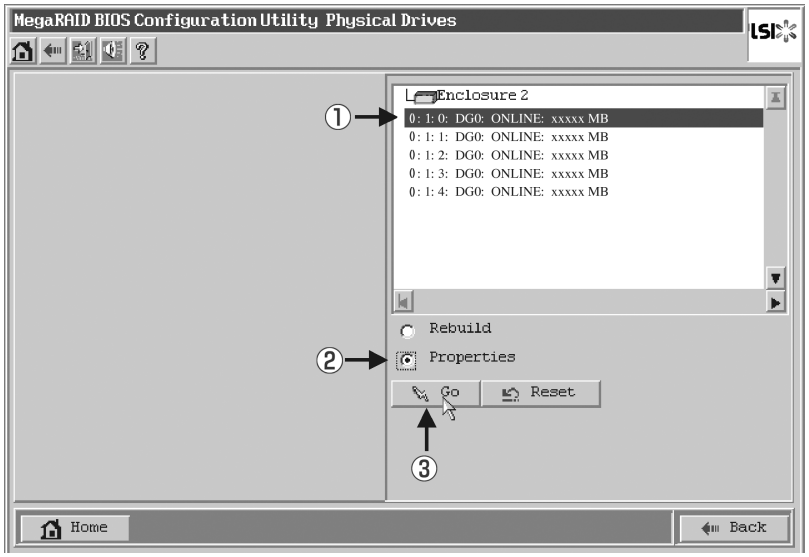


IMPORTANT: If no hard disk drive exists, the upper right column of the screen will be blank. Use this menu only when a hard disk drive exists.

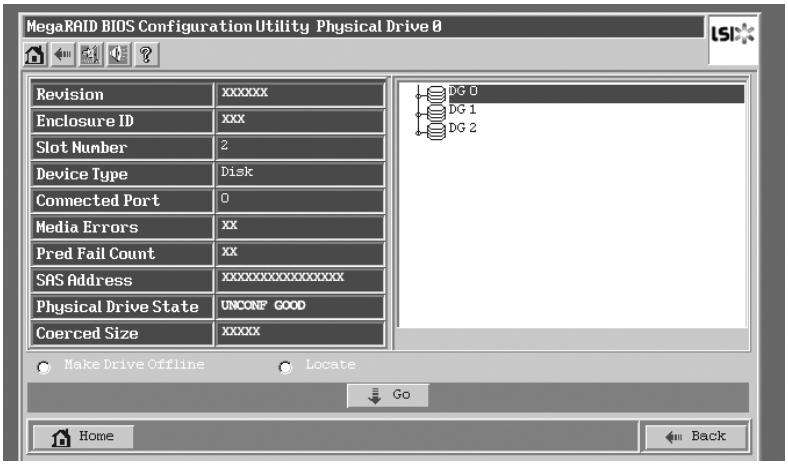
Physical Drives Properties

Take the following procedures to check Physical Drive Properties. Shown below is an example to check property of physical drive 0:0:0.

1. Click the Physical Drive you want to check.
2. Click the checkbox for [Properties].
3. Click [Go].



The Properties screen as shown below appears.



Configuration Wizard

Use this wizard to configure a RAID system using the HDDs connected. The detailed explanation of this feature is given in "Configuring Virtual Disk".

Adapter Selection

Clicking [Adapter Selection] on WebBIOS top menu opens the [Adapter Selection] screen again.

Physical View / Logical View

If the virtual disk has been configured using the RAID Controller, DG (disk group) is displayed on WebBIOS Top Menu. Clicking [Physical View] displays information for HDDs in DG. Clicking [Logical View] displays virtual disk in DG.

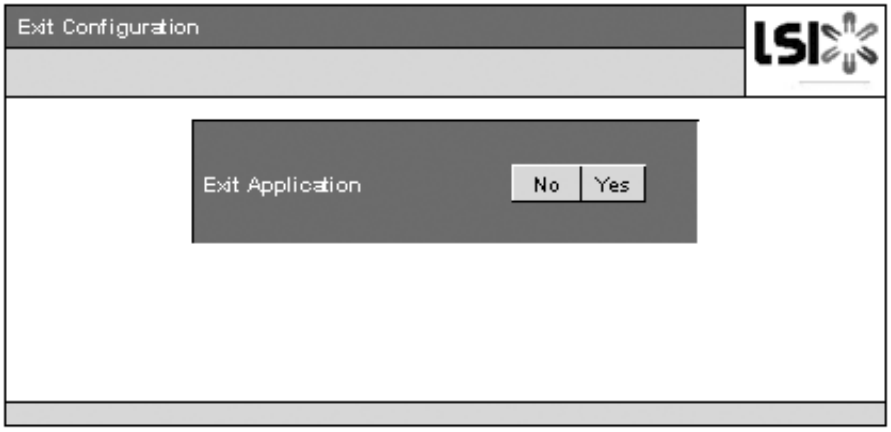
Events

The Events screen is used to confirm the system events.

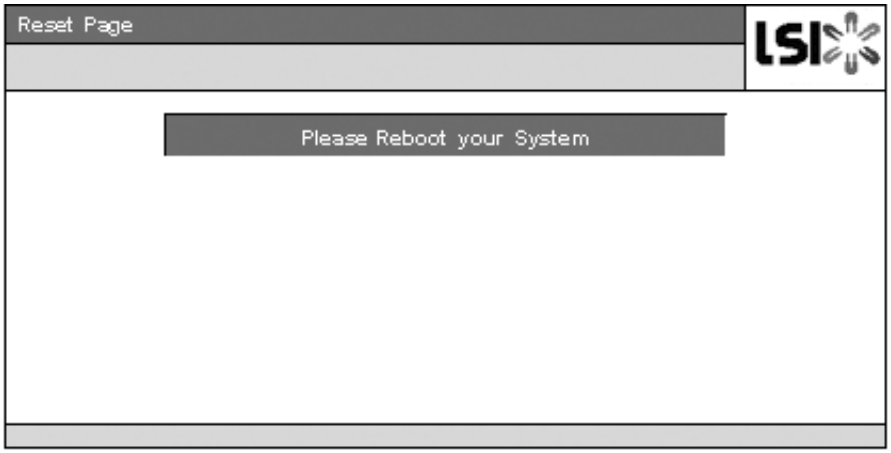
IMPORTANT: The onboard RAID controller does not support Events feature.

Exit

When you click [Exit] on WebBIOS Top Menu, a confirmation screen to exit from WebBIOS is displayed. Click [Yes] to exit from WebBIOS.



The screen as shown below appears when WebBIOS is terminated. Restart the server.

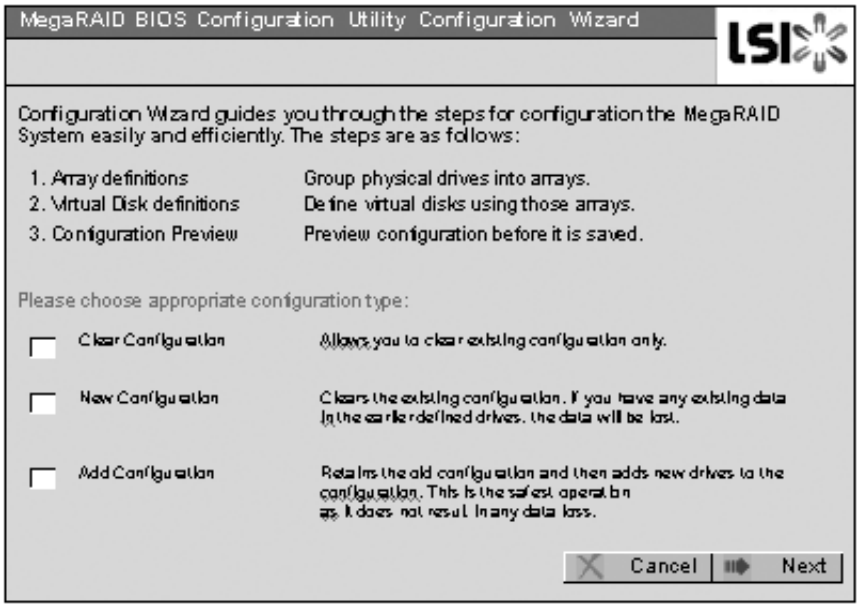


Configuring Virtual Disk

This section describes the procedures for configuration of VD (virtual disk) using WebBIOS.

Configuration Wizard

When you click [Configuration Wizard] on WebBIOS Top Menu, the screen as shown below appears. Select the relevant operation, and click [Next] at lower right of the screen.

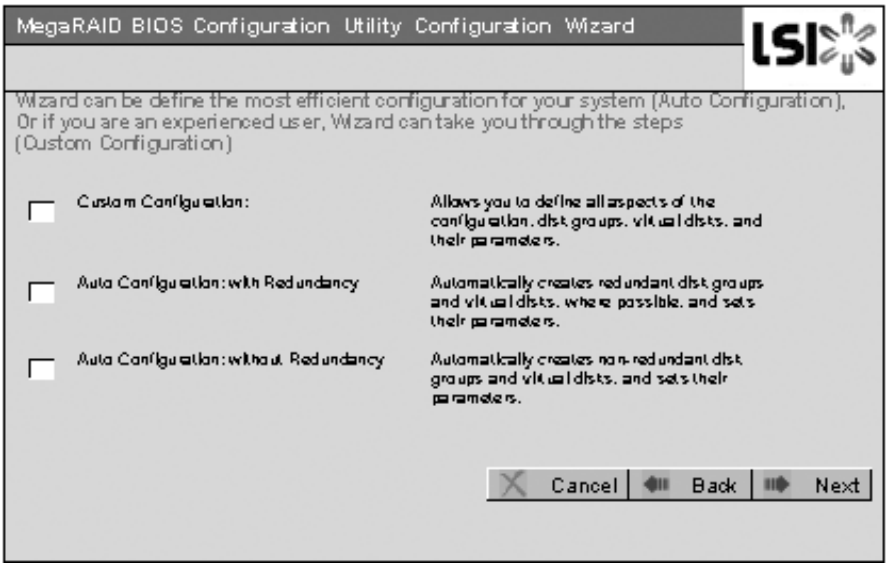

MegaRAID BIOS Configuration Utility Configuration Wizard
Configuration Wizard guides you through the steps for configuration the MegaRAID System easily and efficiently. The steps are as follows:
1. Array definitions
Group physical drives into arrays.
2. Virtual Disk definitions
Define virtual disks using those arrays.
3. Configuration Preview
Preview configuration before it is saved.
Please choose appropriate configuration type:
Clear Configuration
Allows you to clear existing configuration only.
New Configuration
Clears the existing configuration. If you have any existing data in the earlier defined drives, the data will be lost.
Add Configuration
Retains the old configuration and then adds new drives to the configuration. This is the safest operation as it does not result in any data loss.
Cancel
Next

Clear Configuration: Allows you to clear existing configuration.

New Configuration: Clears the existing configuration and creates a new VD. If you have any existing data in the earlier defined virtual disk, the data will be lost.

Add Configuration: Retains the old configuration and then adds new virtual disk.

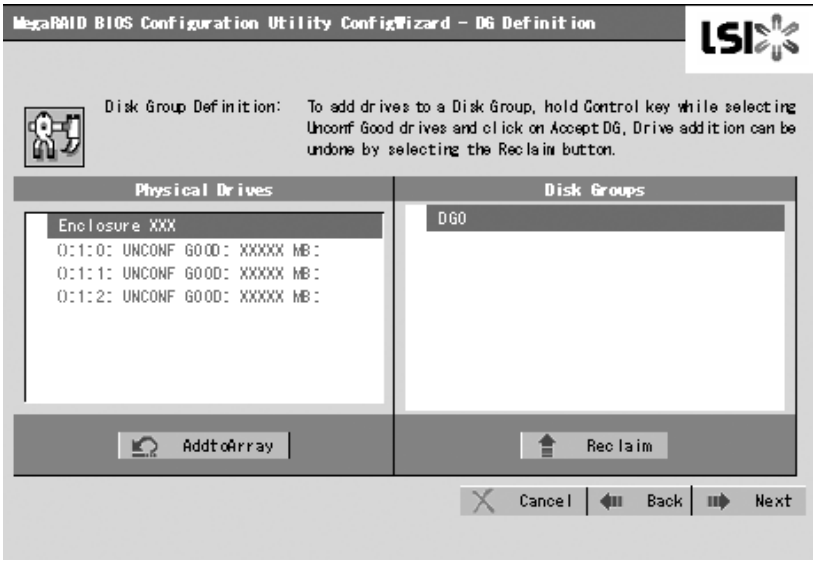
When you select [New Configuration] or [Add Configuration], the screen as shown below appears.


MegaRAID BIOS Configuration Utility Configuration Wizard
Wizard can be define the most efficient configuration for your system (Auto Configuration).
Or if you are an experienced user, Wizard can take you through the steps
(Custom Configuration)
Custom Configuration:
Allows you to define all aspects of the configuration, disk groups, virtual disks, and their parameters.
Auto Configuration with Redundancy
Automatically creates redundant disk groups and virtual disks, where possible, and sets their parameters.
Auto Configuration without Redundancy
Automatically creates non-redundant disk groups and virtual disks, and sets their parameters.
Cancel
Back
Next

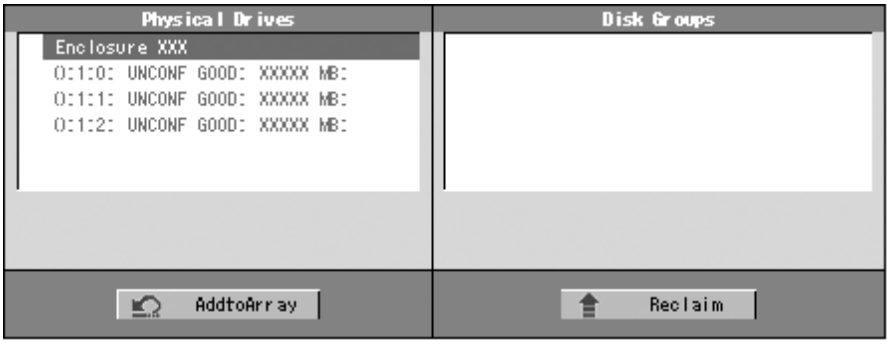
Custom Configuration:	Allows you to define all aspects of the configuration, RAID level, size, and others.
Auto Configuration with Redundancy:	Automatically creates redundant virtual disk.
Auto Configuration without Redundancy:	Automatically creates non-redundant virtual disk.

IMPORTANT: The onboard RAID Controller (MegaRAID ROMB) supports "Custom Configuration" only.

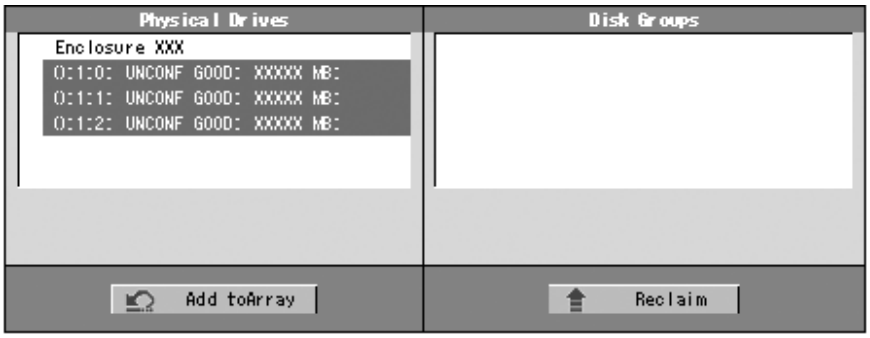
Use this menu to define several physical drives (PD) as a disk group (DG).


MegaRAID BIOS Configuration Utility ConfigWizard - DG Definition
Disk Group Definition:
To add drives to a Disk Group, hold Control key while selecting Unconf Good drives and click on Accept DG. Drive addition can be undone by selecting the Reclaim button.
Physical Drives
Disk Groups
Enclosure XXX
0:1:0: UNCONF GOOD: XXXXX MB:
0:1:1: UNCONF GOOD: XXXXX MB:
0:1:2: UNCONF GOOD: XXXXX MB:
DG0
AddtoArray
Reclaim
Cancel
Back
Next

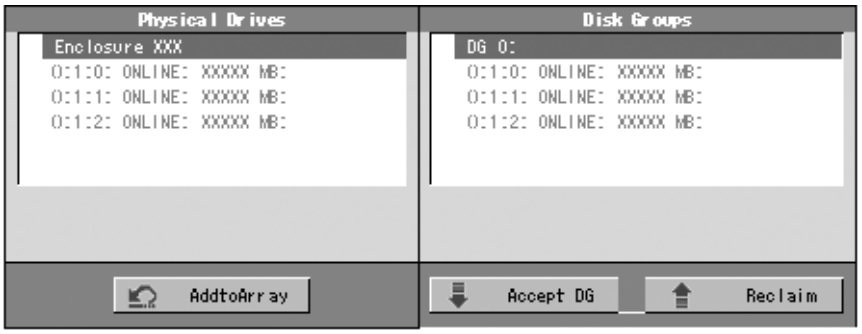
1. To add physical drives (HDD) to a Disk Group, hold **Ctrl** while selecting physical drives (HDDs) in DG.



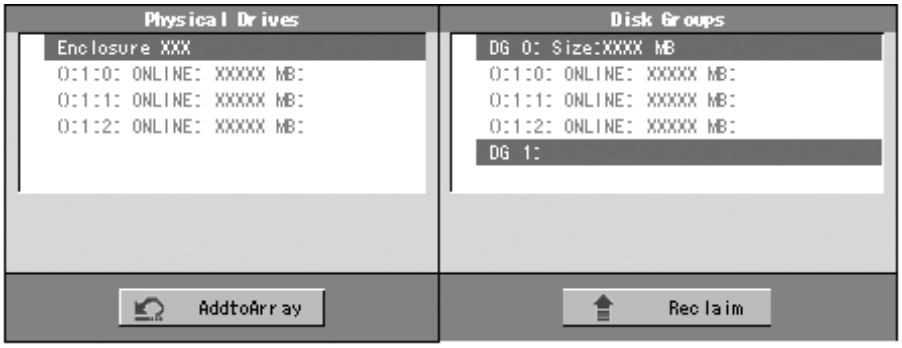
2. Upon completion of selection, click [Add to Array] at the lower left of the screen.



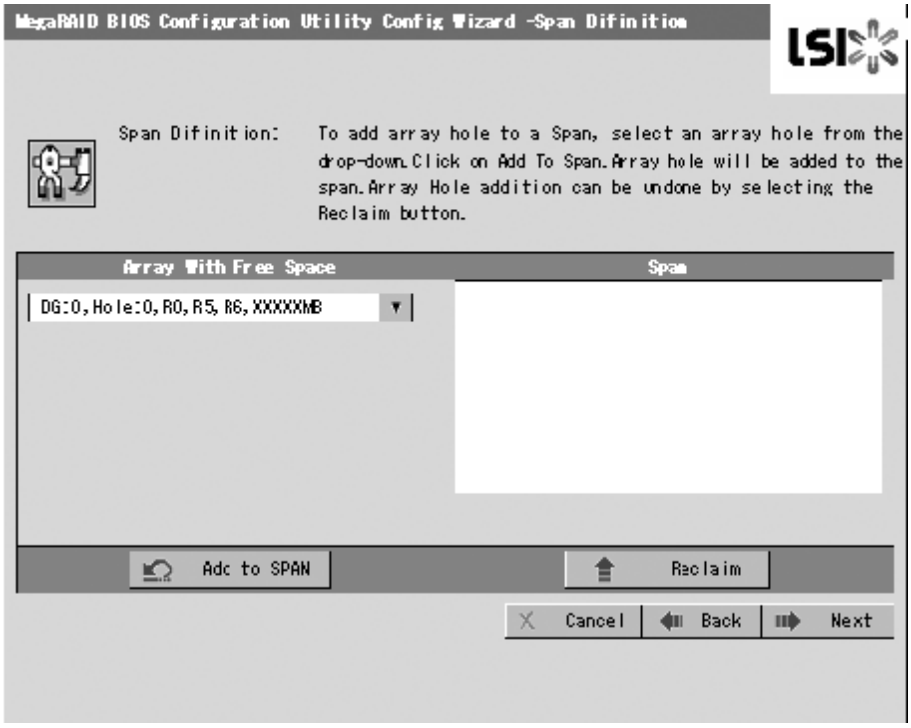
3. A new DG is defined in the Disk Groups frame. To define the new DG, click [Accept DG] at the lower right of the screen.



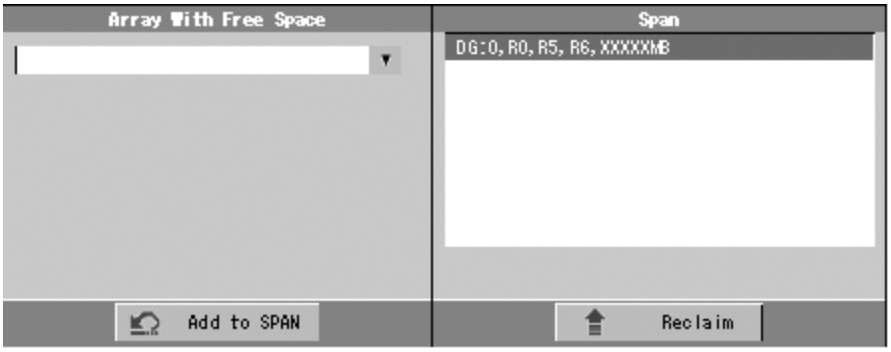
4. After the DG has been defined, click [Next] at the lower right of the screen.



5. Then, the Span Definition screen appears.


MegaRAID BIOS Configuration Utility Config Wizard -Span Difinition
Span Difinition:
To add array hole to a Span, select an array hole from the drop-down. Click on Add To Span. Array hole will be added to the span. Array Hole addition can be undone by selecting the Reclaim button.
Array With Free Space
Span
DG:0, Hole:0, R0, R5, R6, XXXXXMB
Adc to SPAN
Reclaim
Cancel
Back
Next

6. Select a DG to define VD from "Array With Free Space" frame, then click [Add to SPAN]. The DG is defined in the "Span" field to the right.

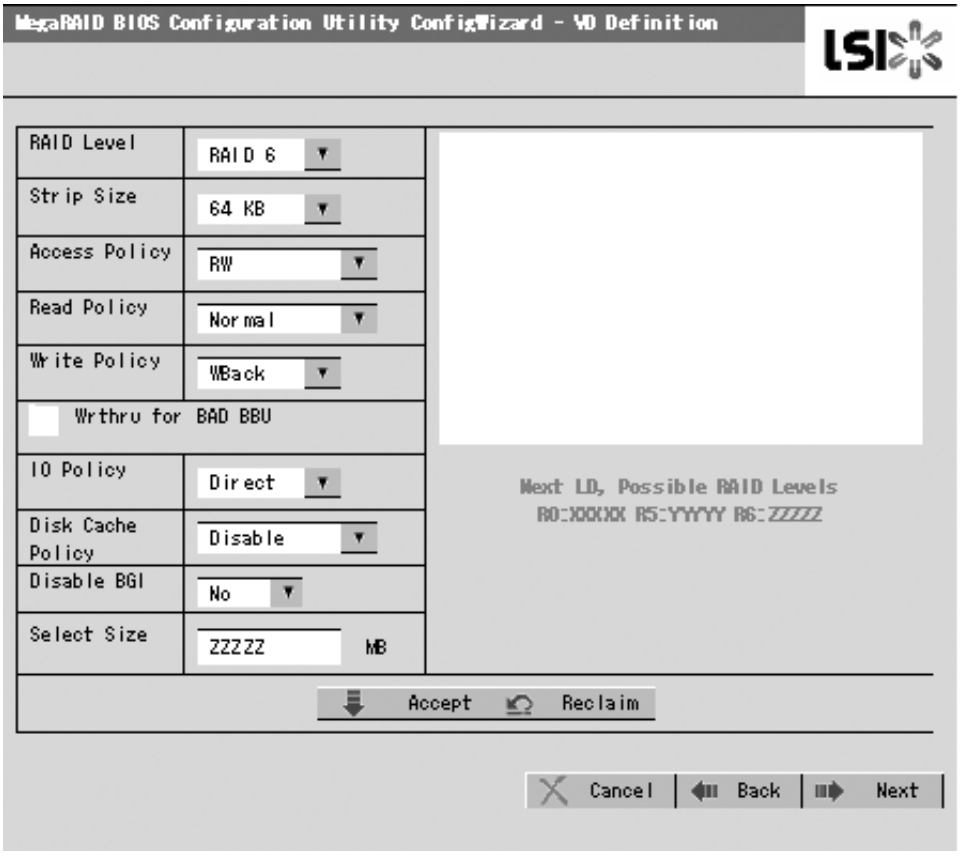


7. After the Span has been defined, click [Next] at the lower right of the screen.

IMPORTANT:

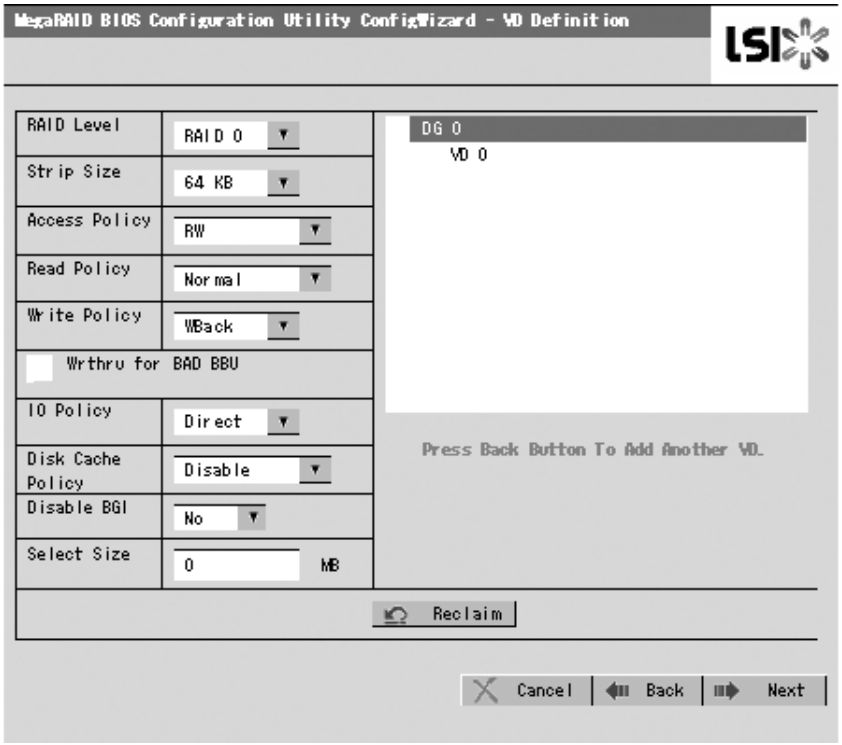
- To configure RAID0, 1, or 5, perform Span Definition to a single DG only. If you need to perform Span Definition to several DGs, define VD for the first DG, then select the next DG to define VD.
- Span Definition cannot be performed to DGs containing the different number of HDDs.

Define the virtual disk (VD) in DG that has been created in previous step. When DG was defined, [VD Definition] screen is displayed. In the "Next LD, Possible RAID Levels" column, available RAID levels and maximum size for VD are displayed.



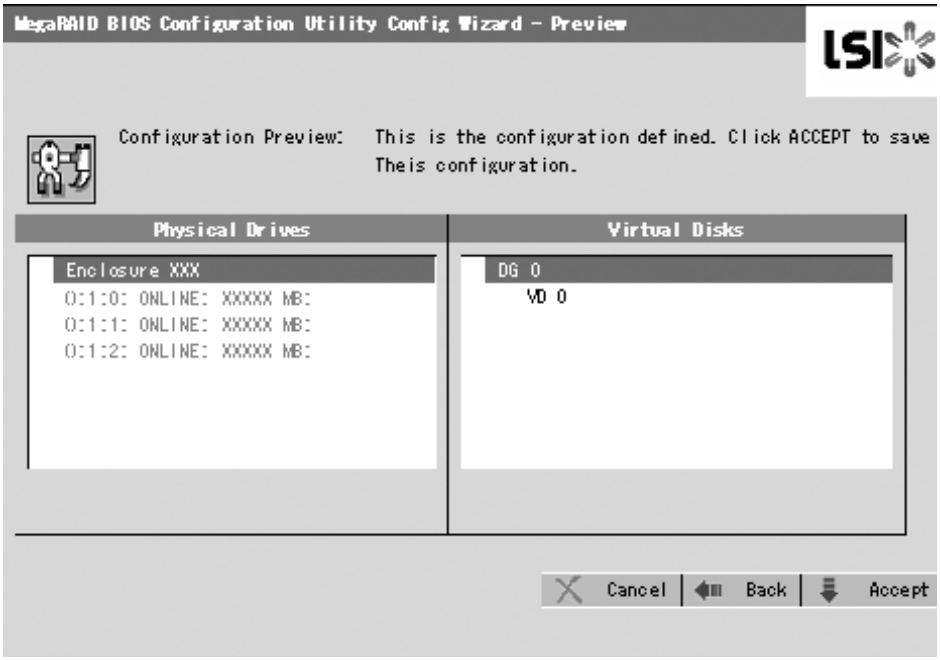
As an example, define a RAID5 VD of yyyyy MB.

1. Specify the necessary parameters in left columns.
2. Enter "yyyyy" in "Select Size" field.
3. Click [Accept] at the lower center of the screen.
4. If you want to define another VD, click [Back] and repeat steps starting from Span Definition screen.
5. Upon completion of VD definition, click [Next].



IMPORTANT: The value shown in "Select Size" indicates the maximum size allowed for RAID1 or RAID5. You need to specify the maximum size for RAID0 or RAID5 according to "Next LD, Possible RAID Levels".

6. VD 0 is created in DG 0 as shown in the screen below.



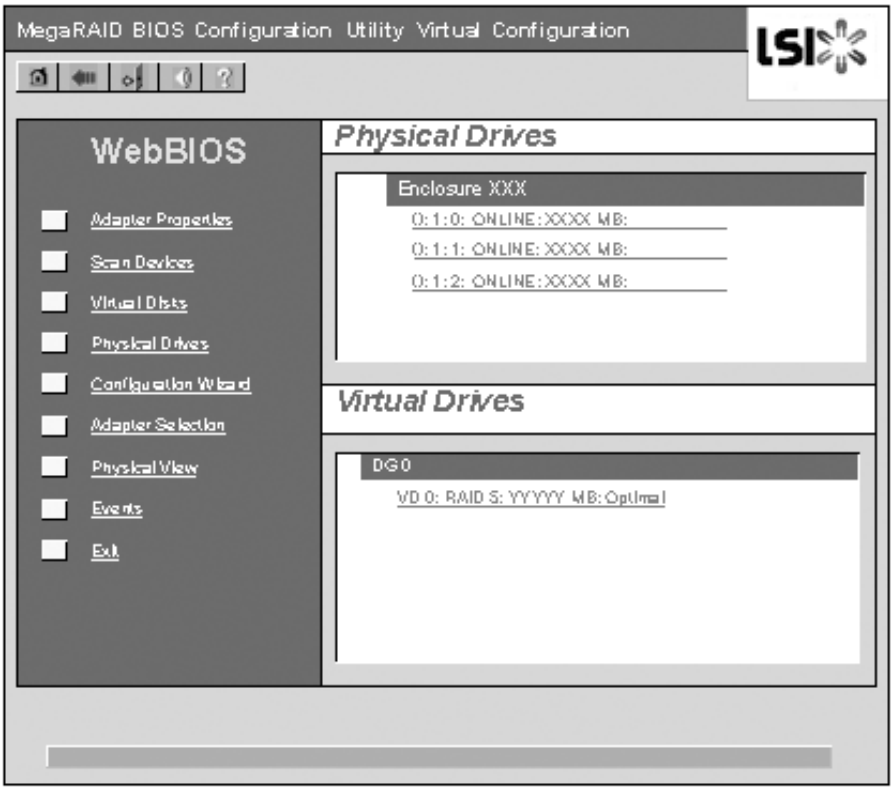
7. After making sure that the VD is created correctly, click [Accept] at the lower right of the screen.

8. The confirmation message "Save this Configuration?" appears. Click "Yes" to save the configuration.

9. The confirmation message "All data on the new Virtual Disks will be lost. Want to Initialize?" appears. Normally, select "Yes".

10. "Virtual Disks" operation screen is displayed. If no other operation is required, click [Home] at the lower left of the screen.

11. The WebBIOS Top Menu is displayed. Virtual Disk you have created is displayed in the lower right frame of the screen.

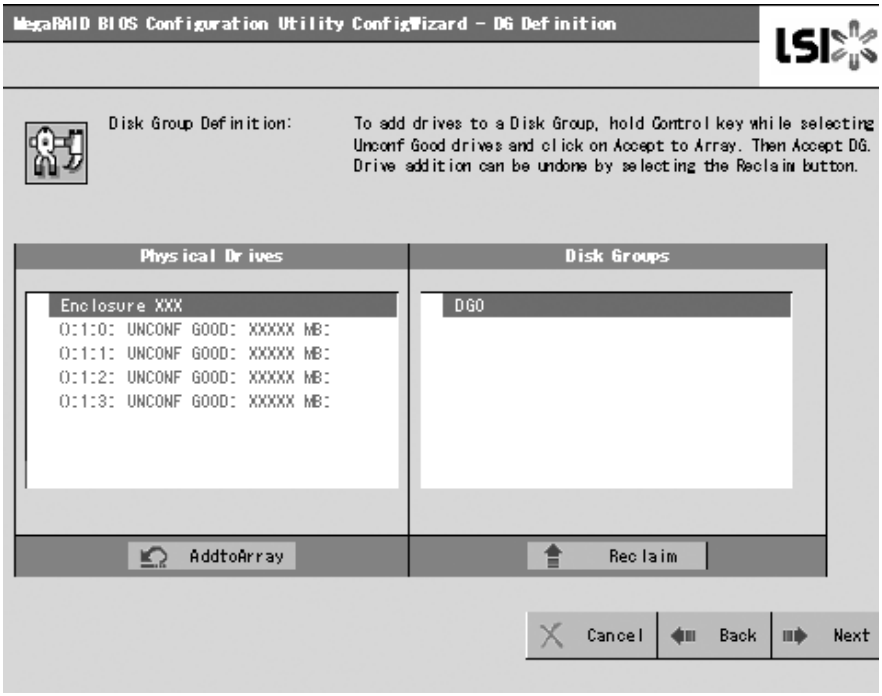


Configure SPAN

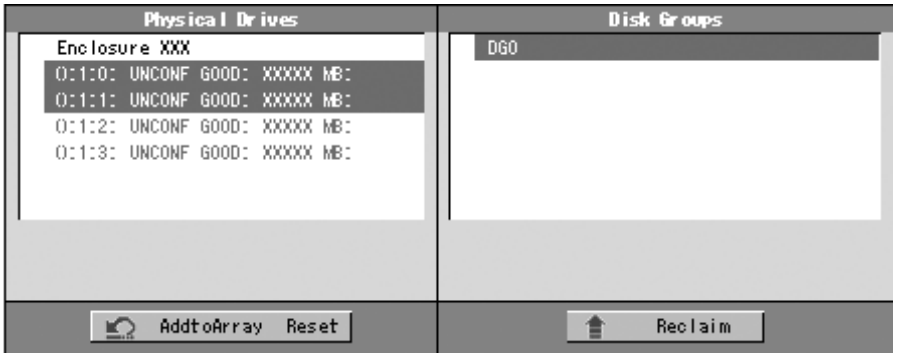
The following explains the sample procedure to configure RAID10 (spanning of RAID1) with four HDDs.

IMPORTANT: Do not attempt to configure RAID00 or RAID60. They are not supported.

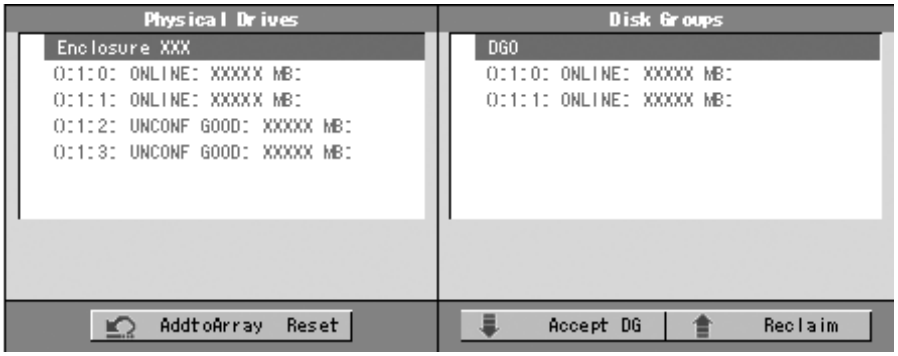
1. Click [Configuration Wizard] on WebBIOS Top Menu to start Wizard.


MegaRAID BIOS Configuration Utility ConfigWizard - DG Definition
Disk Group Definition:
To add drives to a Disk Group, hold Control key while selecting Unconf Good drives and click on Accept to Array. Then Accept DG. Drive addition can be undone by selecting the Reclaim button.
Physical Drives
Disk Groups
Enclosure XXX
0:1:0: UNCONF GOOD: XXXXX MB:
0:1:1: UNCONF GOOD: XXXXX MB:
0:1:2: UNCONF GOOD: XXXXX MB:
0:1:3: UNCONF GOOD: XXXXX MB:
DG0
AddtoArray
Reclaim
Cancel
Back
Next

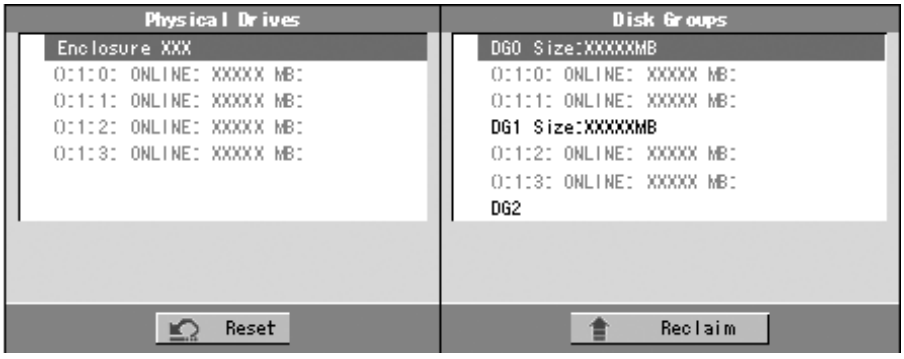
2. To add physical drives (HDD) to a Disk Group, hold **Ctrl** while selecting HDDs in DG. (In the example, two DGs will be configured and spanned.)



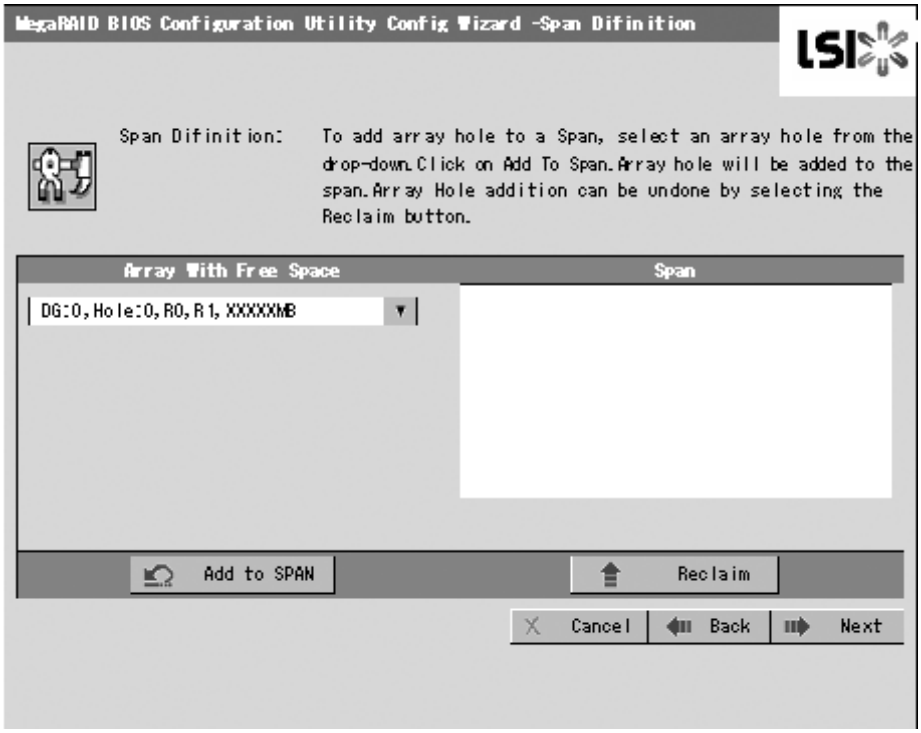
3. Upon completion of selection, click [Add to Array] at the lower right of the screen. After making sure that the new DG has defined in Disk Groups frame to the right, click [Accept DG].



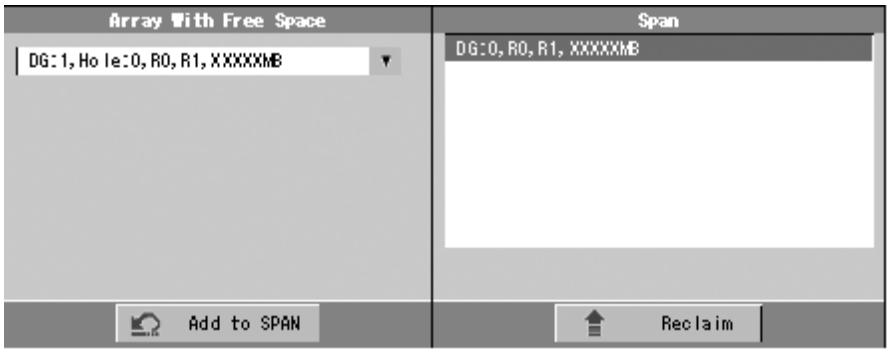
4. A new DG is defined in the Disk Groups frame. Define another DG in the similar procedures. After DGs have been defined, click [Next] at the lower right of the screen.



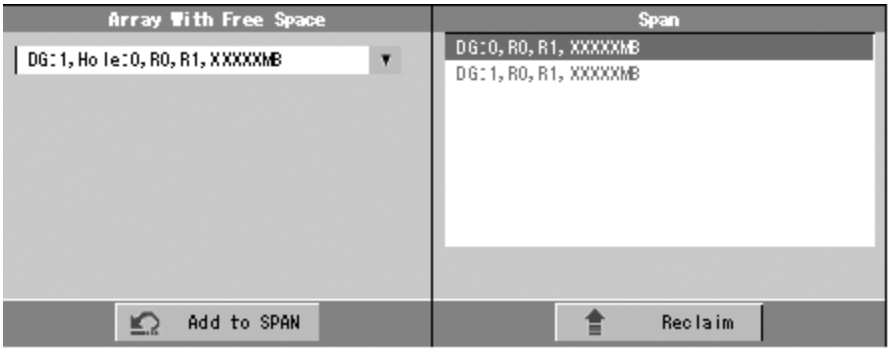
5. Configure RAID10 (spanning of RAID1) using the two DGs that have been created in previous step. When DGs were defined, [VD Definition] screen is displayed.


MegaRAID BIOS Configuration Utility Config Wizard -Span Difinition
Span Difinition:
To add array hole to a Span, select an array hole from the drop-down. Click on Add To Span. Array hole will be added to the span. Array Hole addition can be undone by selecting the Reclaim button.
Array With Free Space
Span
DG:0, Hole:0, R0, R1, XXXXXMB
Add to SPAN
Reclaim
Cancel
Back
Next

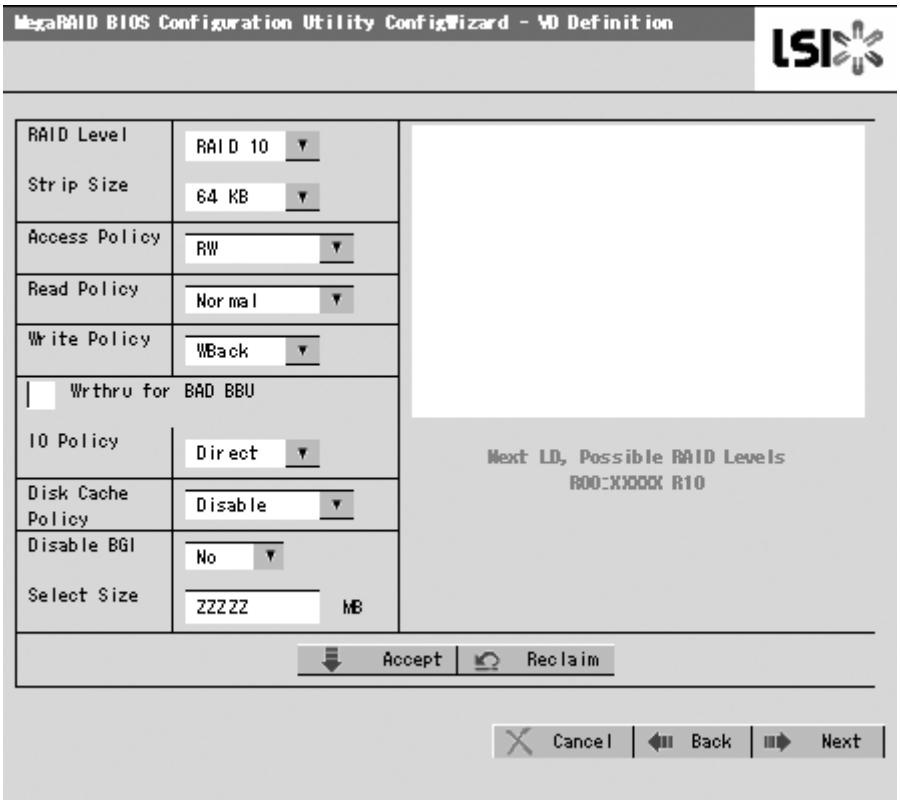
6. Select DG0 from "Array With Free Space" frame, then click [Add to SPAN]. The DG is defined in the "Span" field to the right.



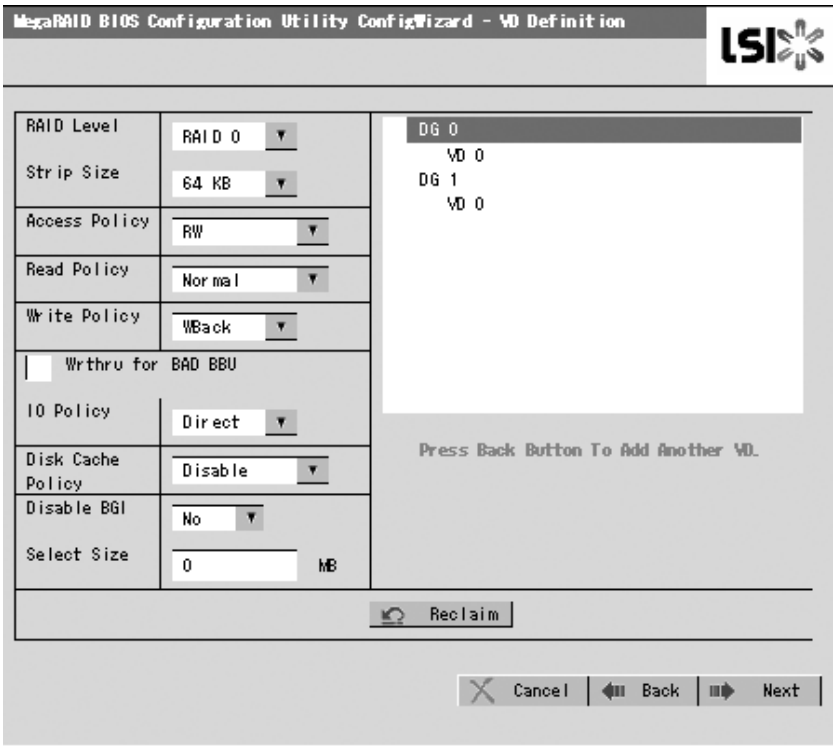
7. Then, select DG1 and click [Add to SPAN]. When the two DGs are defined in the "Span" field to the right, click [Next].



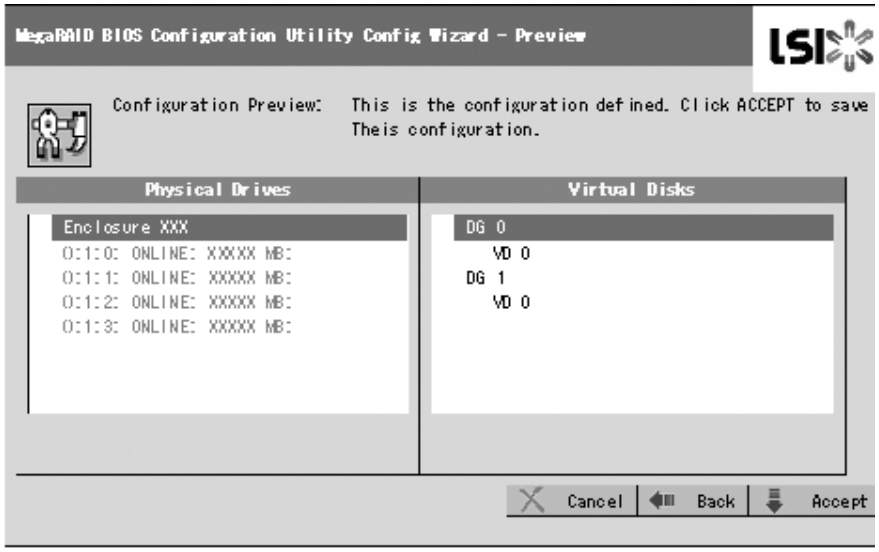
8. The VD Definition screen is displayed. Enter the necessary parameters, and click [Accept].



9. Make sure that both DG0 and DG1 are defined as VD 0, then click [Next] at the lower right of the screen.



10. On the "Preview" screen, make sure the VD is defined correctly, then click [Accept] at the lower right of the screen.



11. The confirmation message "Save this Configuration?" appears. Click "Yes" to save the configuration.

12. The confirmation message "All data on the new Virtual Disks will be lost. Want to Initialize?" appears. Normally, select "Yes".

13. "Virtual Disks" operation screen is displayed. If no other operation is required, click [Home] at the lower left of the screen.

14. The WebBIOS Top Menu is displayed. Virtual Disk you have created is displayed in the lower right frame of the screen.

Parameters for VD Definition

Listed below are parameters for Configuration Wizard.

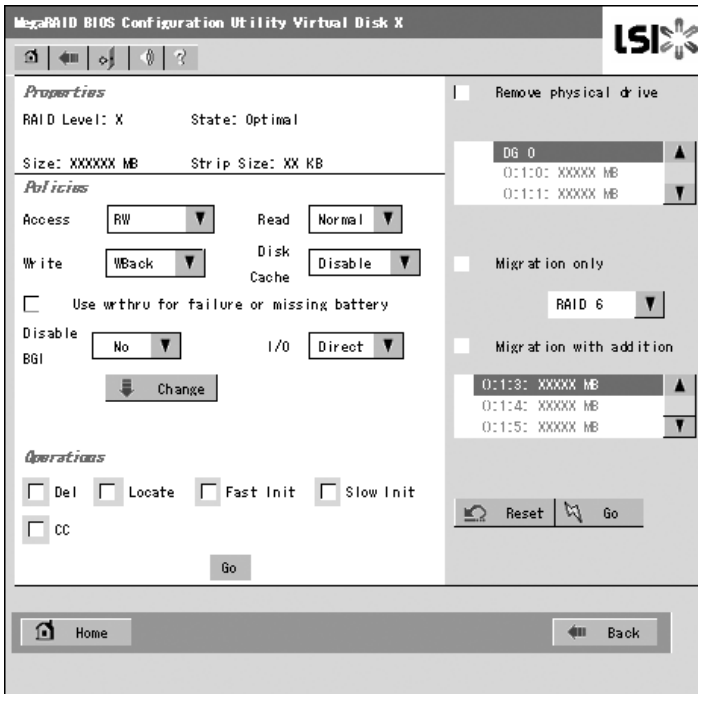
Item	Parameter	Remarks
RAID Level	**RAID 0** / **RAID 1** / **RAID 5** / RAID 6 / RAID 00 / RAID 10 / RAID 50 / RAID60	RAID 6, RAID 00, RAID 10, RAID 50, and RAID 60 are not supported.
Strip Size	8 KB / 16 KB / 32 KB / **64 KB** / 128 KB / 256 KB / 512 KB / 1024 KB	Recommended value: 64KB
Access Policy	**RW** / Read Only / Blocked	Recommended value: RW
Read Policy	**Normal** / Ahead / Adaptive	Recommended value: Normal
Write Policy	**WBack** / **WThru**	WBack: WriteBack WThru: WriteThru
WrtThru for BAD BBU	**Checked** / Unchecked	Select a mode when WriteBack is specified for Write Policy. Checked: Normal WriteBack Unchecked: Constant WriteBack Recommended value: Checked
IO Policy	**Direct** / Cached	Recommended value: Direct
Disk Cache Policy	NoChange / Enable / **Disable**	Recommended value: Disable
Disable BGI	**No** / Yes	Specify whether to perform Background Initialize after creation of VD. Recommended value: No

IMPORTANT: The server does not support BGI (Back Ground Initialize) feature.

The Write Policy has the following modes depending on combination with WrtThru for BAD BBU. Select a mode suitable for your environment.

		WrtThru for BAD BBU	
		Checked	**Unchecked**
Write Policy	**WBack**	Normal write back mode (recommended) This mode is available only when N8103-120 RAID Battery Backup Unit is installed. The controller uses cache memory for writing. However, if the battery is being charged or failed, the controller operates in WThru (write through) mode automatically. Thus, this mode can provide higher data security.	Constant write back mode This mode is available even if N8103-120 RAID Battery Backup Unit is not installed. The controller always uses cache memory for writing. In this mode, the data in cache memory may not be protected from being damaged if the power failure occurs due to charge/discharge or defect of the battery. Be sure to use UPS when specifying this mode for write policy.
	WThru	Write through mode This mode is recommended when N8103-120 RAID Battery Backup Unit is not installed. The controller does not use cache memory for writing data.	* This mode is unavailable. If you do not check "WrtThru for BAD BBU" at creation of VD, this item is automatically checked after the VD has been created.

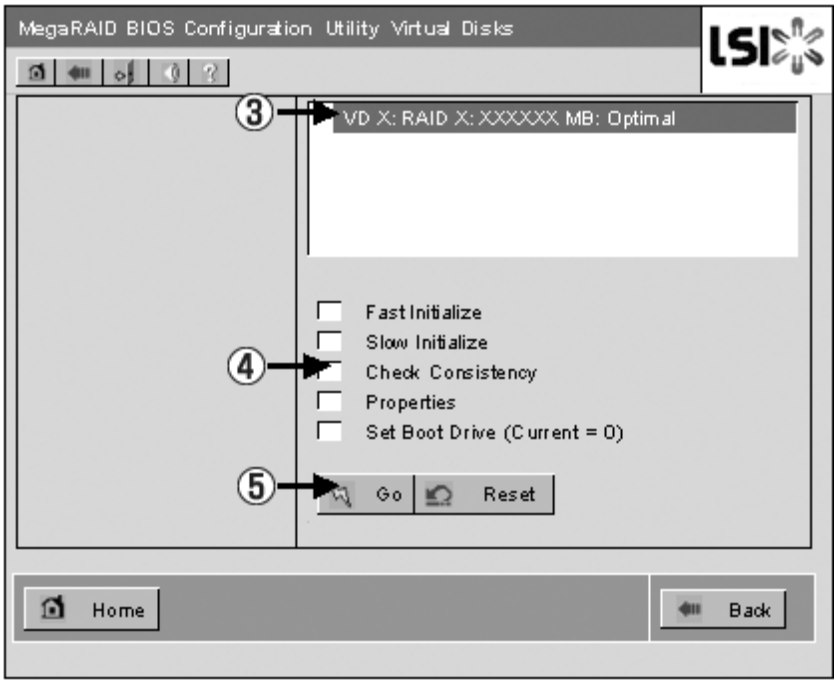
You can change parameters for VD definition except for RAID level and Stripe Size. On the WebBIOS Top Menu, click [Virtual Disks] and specify parameters in "Policies" frame, then click [Change].



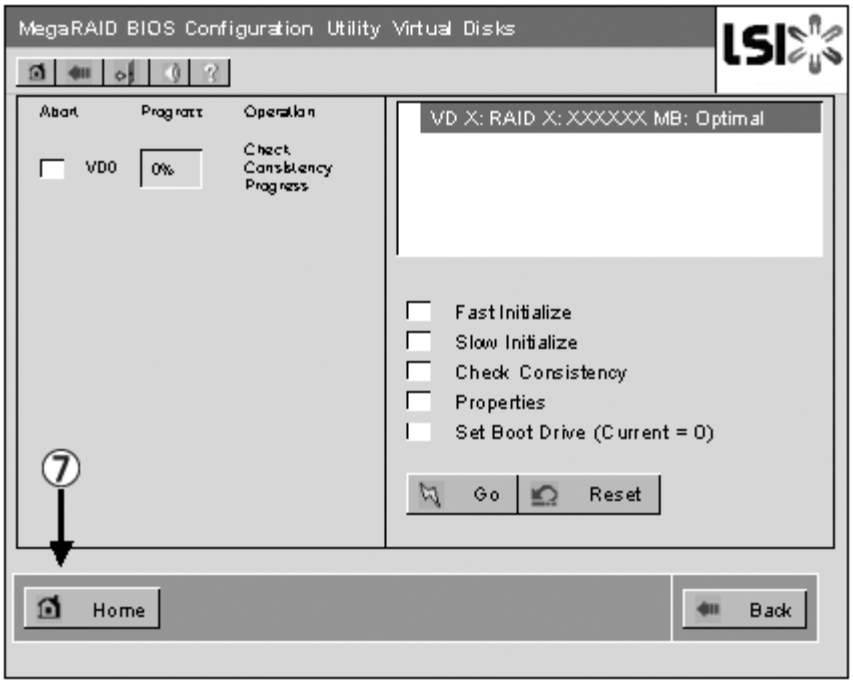
Operation of Various Features

Check Consistency

1. Start WebBIOS.
2. Click [Virtual Disks] on WebBIOS Top Menu.
3. Select a VD to perform Check Consistency from the upper right frame of Virtual Disks screen.
4. Click the checkmark column for Check Consistency from the lower right frame of Virtual Disks screen.
5. Make sure that Check Consistency is checked, and click [Go].



6. The progress of Check Consistency is displayed on the left frame of Virtual Disks screen.
7. Click [Home] at the lower left of Virtual Disks screen to return to the Top Menu.



IMPORTANT: Click [Home] while the background task such as Consistency Check, Rebuild, or Reconstruction is being executed. With the progress indication being displayed, the background task may be processed at slow rate.

Manual Rebuild

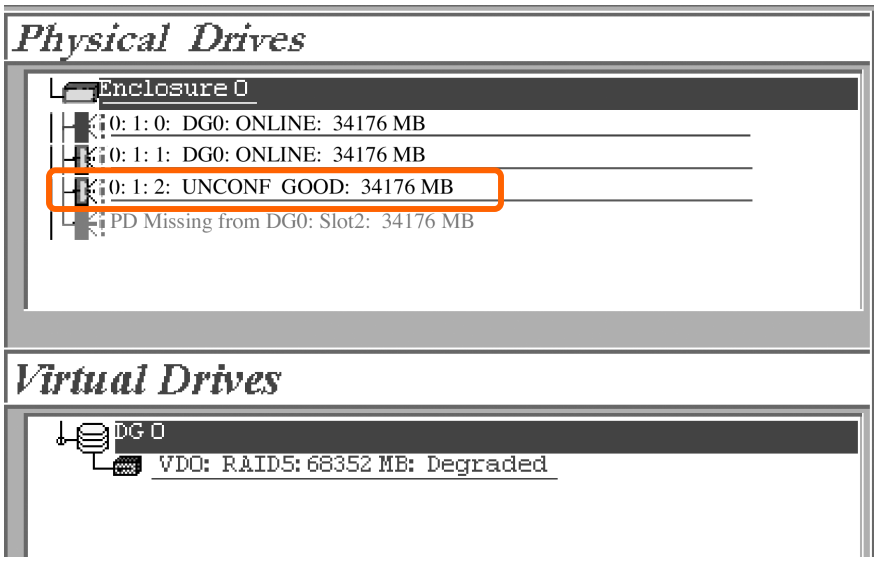
Described below are procedures based on assumption:
One of the HDDs failed in a RAID5 virtual disk configured with three HDDs.

Replace the failed HDD with new one after turning off the power of the server. Auto Rebuild feature is disabled for non-hot-swap replacement. Use Manual Rebuild feature to recover the virtual disk as described below.

1. Start WebBIOS.

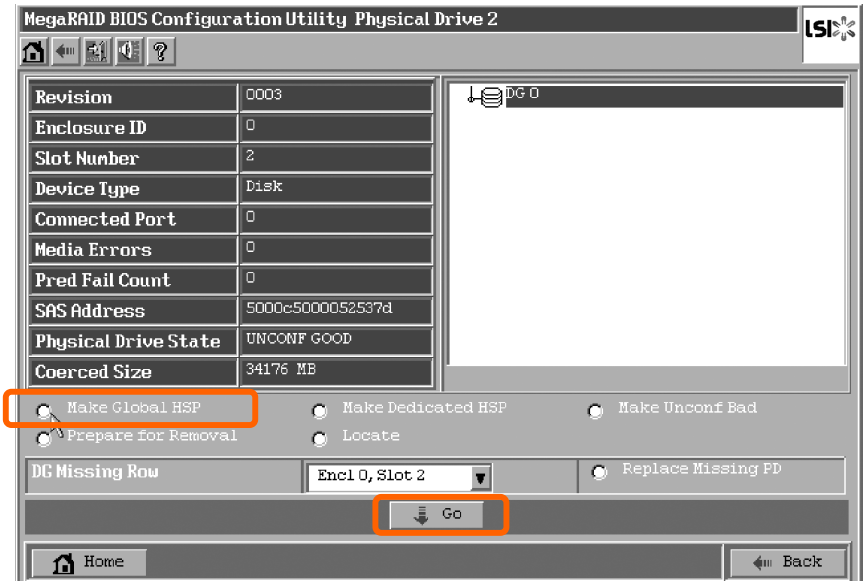
   Make sure that the status for the replaced HDD is indicated as "UNCONF GOOD" in the right frame of the Top Menu.

   In the example below, the hard disk drive in slot number 2 has been replaced.
   The indication "PD Missing from DGx: Slot 2: xxxxx MB" represents that the PD (physical drive) having been installed in slot number 2 was removed.

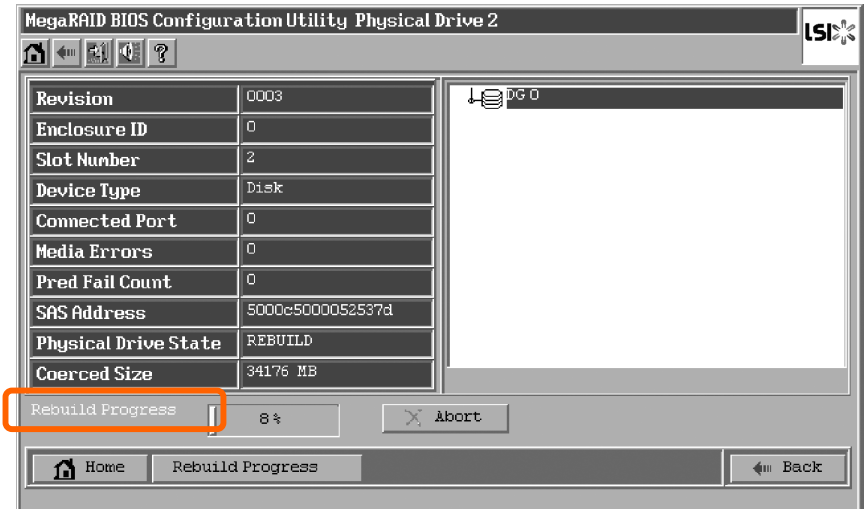

Physical Drives
Enclosure 0
0: 1: 0: DG0: ONLINE: 34176 MB
0: 1: 1: DG0: ONLINE: 34176 MB
0: 1: 2: UNCONF GOOD: 34176 MB
PD Missing from DG0: Slot2: 34176 MB
Virtual Drives
DG 0
VD0: RAID5: 68352 MB: Degraded

2. Select "():1:2" (newly connected HDD) in [Physical Drives].
3. The properties for Physical Drive is displayed.

4. Select "Make Global HSP" or "Make Dedicated HSP" on the lower part of the screen, and then click [Go] on the lower center of the screen.



5. When [Rebuild Progress] is displayed, click [Home] at the lower left of the screen to go back to WebBIOS Top Menu.



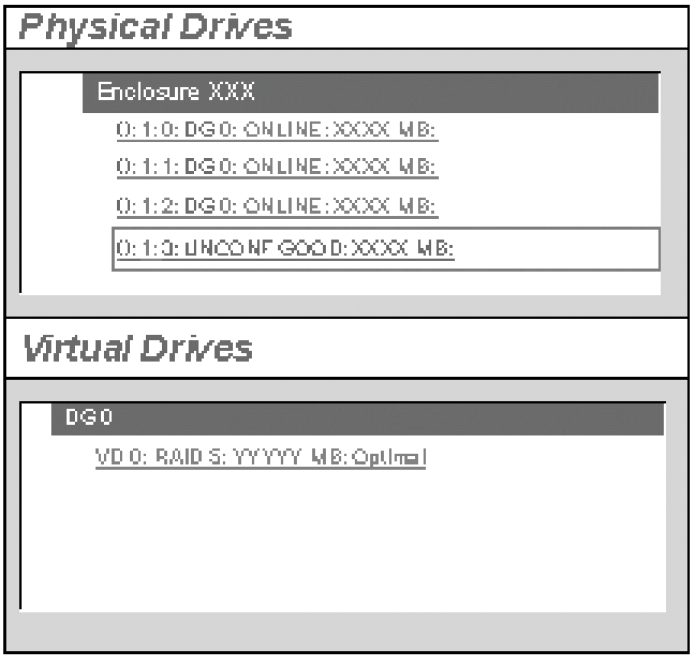
IMPORTANT: Click [Home] while the background task such as Consistency Check, Rebuild, or Reconstruction is being executed. With the progress indication being displayed, the background task may be processed at slow rate.

Setting Hot Spare

Described below are procedures based on assumption:
Add a HDD to a RAID5 virtual disk configured with three HDDs and assign a newly added HDD as Hot Spare.

1. Start WebBIOS.

   Make sure that the status for the added HDD is indicated as "UNCONF GOOD" in the right frame of the Top Menu.

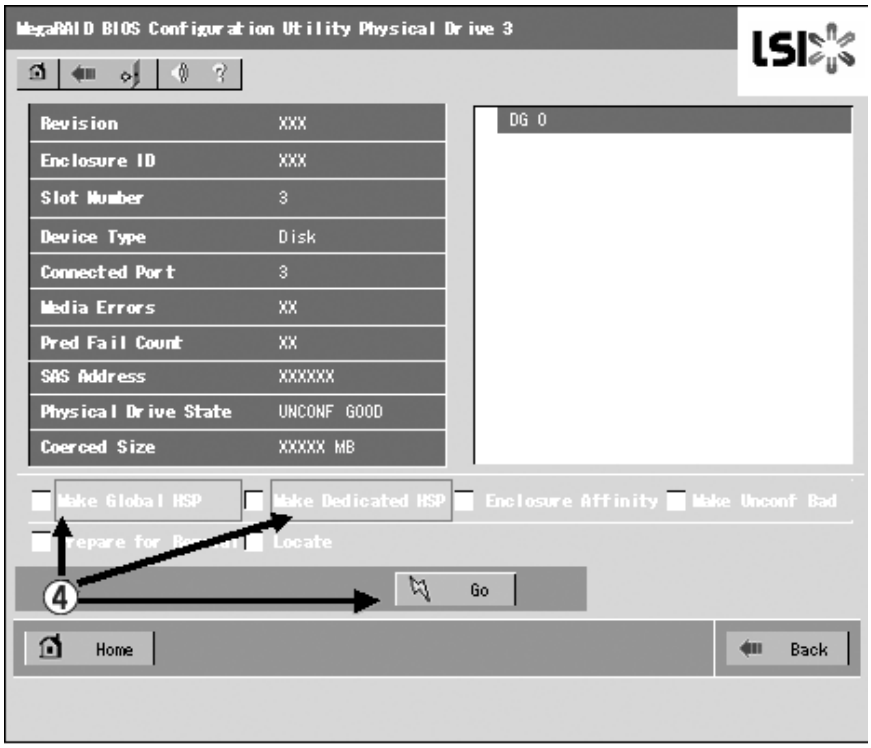

Physical Drives
Enclosure XXX
0: 1: 0: DG 0: ONLINE: XXXX MB:
0: 1: 1: DG 0: ONLINE: XXXX MB:
0: 1: 2: DG 0: ONLINE: XXXX MB:
0: 1: 3: UNCONF GOOD: XXXX MB:
Virtual Drives
DG 0
VD 0: RAID 5: YYYY MB: Optimal

2. Select "():1:3" (newly connected HDD) in [Physical Drives].
3. The properties for Physical Drive is displayed.

4. Select [Make Global HSP] or [Make Dedicated HSP] on the lower right of the screen, and then click [Go] on the lower center of the screen.

Global HSP: Indicates the Hot Spare available for all DGs.

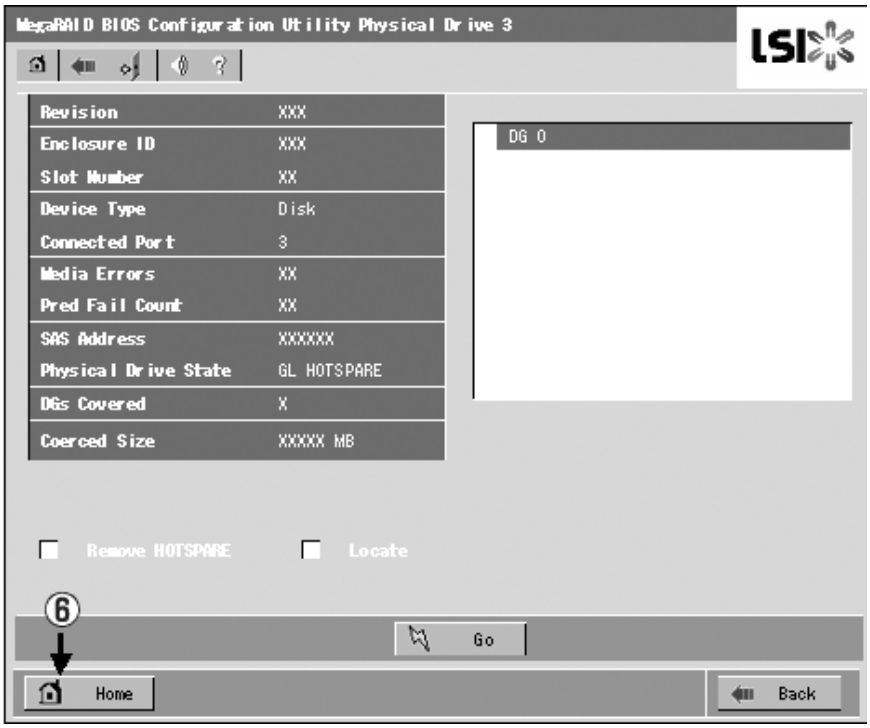
Dedicated HSP: Indicates the Hot Spare available only for the specific DG. You need to specify the target DG.



NOTE: Do not check "Enclosure Affinity" which defines the hot-spare to the specific enclosure. This setting is not supported in the system.

5. The status for the newly connected HDD changes to "HOTSPARE".

6. Click [Home] at the lower left of the screen to go back to WebBIOS Top Menu.

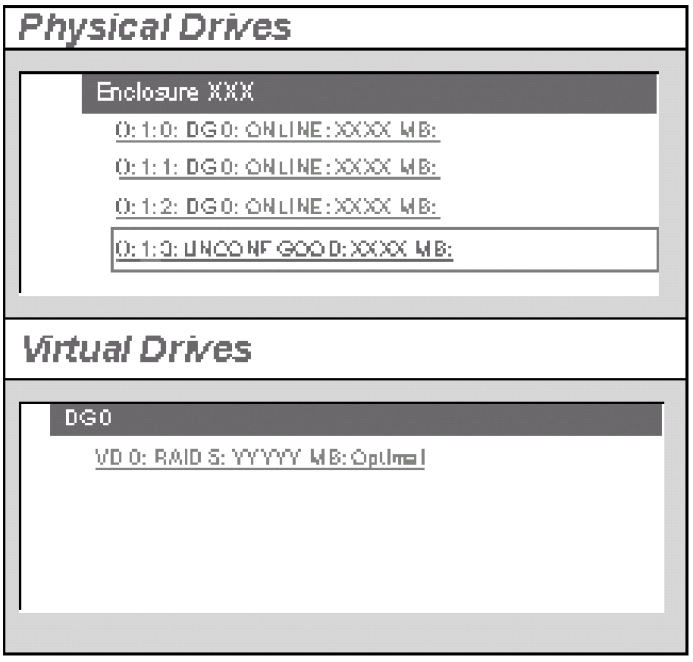


Reconstruction

Described below are procedures based on assumption:
Add a HDD to a RAID5 virtual disk configured with three HDDs to make a RAID5 virtual disk configured with four HDDs.

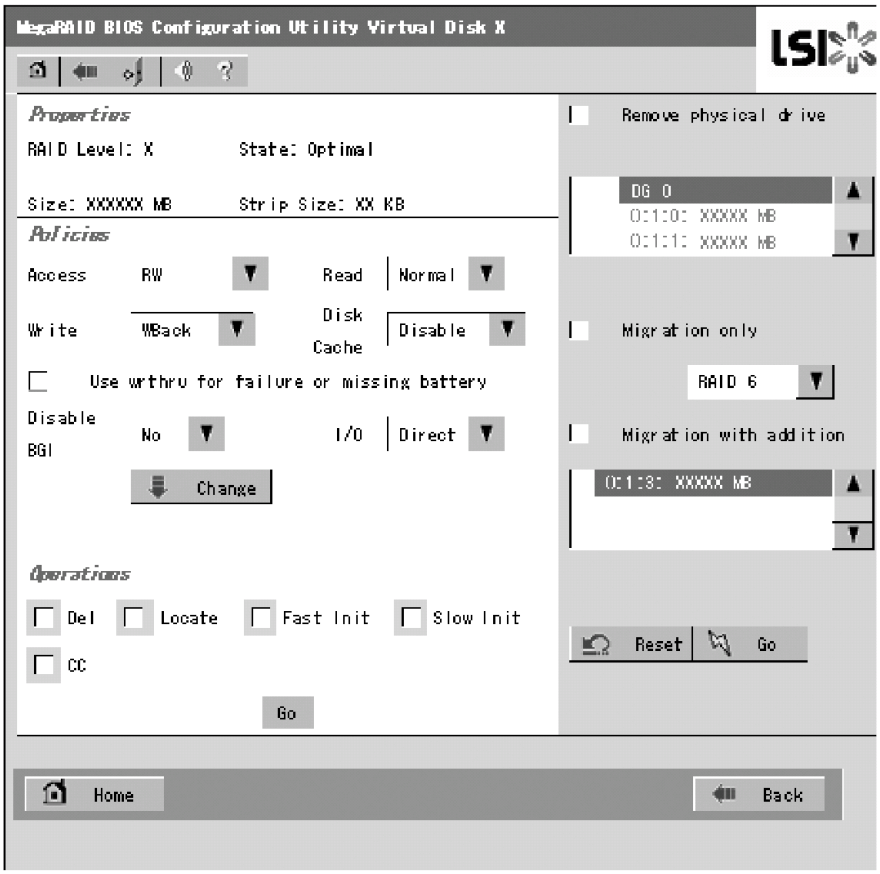
1. Start WebBIOS.

   Make sure that the status for the added HDD is indicated as "UNCONF GOOD" in the right frame of the Top Menu.

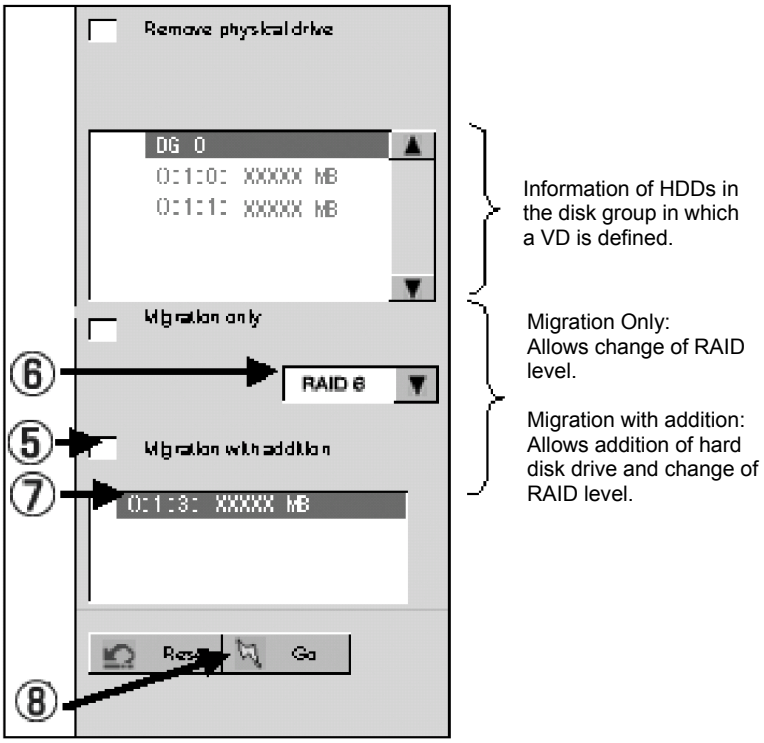


2. Select "VD 0" (already been constructed) in [Virtual Drives].

3. Setting menu for VD 0 is displayed.



4. On the right of the screen, items required for reconstruction are displayed.


Remove physical drive
DG 0
0:1:0: XXXXX MB
0:1:1: XXXXX MB
Migration only
RAID 6
Migration with addition
0:1:3: XXXXX MB
Go
Information of HDDs in the disk group in which a VD is defined.
Migration Only: Allows change of RAID level.
Migration with addition: Allows addition of hard disk drive and change of RAID level.

5. Select "Migration with addition".

6. Specify the RAID level used after reconstruction.

7. Select a HDD to be added.

8. When you finished steps 5 to 7, click [Go] at the lower right of the screen.

9. The progress of reconstruction is displayed on the lower left of the screen. Click [Home] at the lower left of the screen to return to the WebBIOS Top Menu.

IMPORTANT:

- The capacity of virtual disk may be incorrectly displayed after reconstruction. In this case, perform Scan Devices from the Top Menu.
- Click [Home] while the background task such as Consistency Check, Rebuild, or Reconstruction is being executed. With the progress indication being displayed, the background task may be processed at slow rate.

WebBIOS and Universal RAID Utility

You can use Universal RAID Utility for configuration and management, monitoring of RAID System after start up operating system.

The point to be kept in mind when using Universal RAID Utility together with WebBIOS is as follows.

Terms

WebBIOS and Universal RAID Utility are different in term.

When you use Universal RAID Utility together with WebBIOS, please convert terms by the following list.

Term of WebBIOS	Term of Universal RAID Utility
Adapter	RAID Controller
Virtual Disk	Logical Drive
Disk Group	Disk Array
Physical Drive	Physical Device

Number and ID

The number to manage each component of RAID System of Universal RAID Utility is different to WebBIOS.

Adapter and RAID Controller

WebBIOS manages Adapter by a number beginning with 0. You can see a number of Adapter where [Adapter No] in [Adapter Selection] menu.

Universal RAID Utility manages RAID Controller by a number beginning with 1. You can see a number of RAID Controller where [Number] in the property of RAID Controller on RAID Viewer or [RAID Controller #X] in the property of RAID Controller on raidcmd.

Also, you can see the number of Adapter managed by WebBIOS where [ID] in the property of RAID Controller by Universal RAID Utility.

Virtual Disk and Logical Drive

WebBIOS manages Virtual Disk by a number beginning with 0. You can see a number of Virtual Disk where [VD X] in Virtual Drives.

Universal RAID Utility manages Logical Drive by a number beginning with 1. You can see a number of Logical Drive where [Number] in the property of Logical Drive on RAID Viewer or [RAID Controller #X Logical Drive #Y] in the property of Logical Drive on raidcmd.

Also, you can see the number of Logical Drive managed by WebBIOS where [ID] in the property of Logical Drive by Universal RAID Utility.

Disk Array

WebBIOS manages Disk Array by a number beginning with 0. You can see a number of Disk Array where [DG X] in Physical Drives and Virtual Drives.

Universal RAID Utility manages Disk Array by a number beginning with 1. You can see a number of Disk Array where [Disk Array] in the property of Logical Drive on RAID Viewer or [RAID Controller #X Disk Array #Y] in the property of Disk Array on raidcmd.

Physical Drive and Physical Device

WebBIOS manages Physical Drive by three numbers (Connector number:Enclosure number:Slot number). You can view these numbers shown by [x:x:x] in Physical Drives box. Note, however, the Connector number is always shown as "()" because it is not supported with this server. The Enclosure numbers are represented by a number beginning with 1, and the Slot numbers are represented by a number beginning with 0.

Universal RAID Utility manages Physical Device by a number beginning with 1 and ID, Enclosure number, and Slot number. The numbers of physical devices connected to the controller are sorted in ascending order based on ID and assigned number beginning with 1, starting from the smallest number. The ID is same value of Connected Port shown in Physical Drives Properties box in WebBIOS. Enclosure number and Slot number are assigned with a number beginning with 1.

> **IMPORTANT:** Note that the slot numbers shown in Physical Drives box of WebBIOS are represented by a number beginning with 0, but those in Universal RAID Utility are represented by a number beginning with 1.

Setting of Priority

WebBIOS displays and sets Rebuild Priority and Patrol Read Priority, Consistency Check Priority of RAID Controller by percentage. But, Universal RAID Utility uses three levels as High/Middle/Low for them.

The setting value of WebBIOS and the display level of Universal RAID Utility

Item	Setting value of WebBIOS	Universal RAID Utility level
Rebuild Priority Rebuild Rate (WebBIOS)	80 to 100	High
	31 to 79	Middle
	0 to 30	Low
Patrol Read Priority Patrol Read Rate (WebBIOS)	80 to 100	High
	31 to 79	Middle
	0 to 30	Low
Consistency Check Priority Consistency Check Rate (WebBIOS)	80 to 100	High
	31 to 79	Middle
	0 to 30	Low

The setting level of Universal RAID Utility and the setting value

Item	Setting level of Universal RAID Utility	Setting value
Rebuild Priority Rebuild Rate (WebBIOS)	High	90
	Middle	50
	Low	10
Patrol Read Priority Patrol Read Rate (WebBIOS)	High	90
	Middle	50
	Low	10
Consistency Check Priority Consistency Check Rate (WebBIOS)	High	90
	Middle	50
	Low	10

NOTES:

- WebBIOS can set BGI Rate (Background Initialize Priority). But Universal RAID Utility cannot set it.
- Universal RAID Utility can set Initialization Priority. But, onboard RAID Controller does not have the function of the setting of Initialization Priority. Therefore, Universal RAID Utility doesn't display [Initialization Priority] in the property of RAID Controller. Also, it will fail that you change the Initialization Priority by raidcmd.

Battery for On-board RAID Controller (MegaRAID ROMB)

This section describes the features operations of battery for on-board RAID controller (MegaRAID ROMB).

Features

The on-board RAID controller (MegaRAID ROMB) has factory-installed battery.

With the following features, the possibility of data loss due to an unexpected accident (e.g., an instantaneous power failure which may occur in Write Back mode) can be avoided.

- Backup of data in cache memory of RAID controller
- Improvement of reliability in Write Back mode
- Adoption of reusable nickel hydrogen battery

IMPORTANT: While the battery is being charged or discharged, "Write Through" is displayed in [Current Write Policy].

NOTE: The Default Write Policy is factory-set to "Write Back".

Refresh Battery (Learn Cycle)

The learn cycle of battery is disabled in this controller. The Onboard RAID Controller (MegaRAID ROMB) performs discharging and charging cycle only once at the first time the server is installed.

Chapter 5

Installing the Operating System with Express Setup

This section describes information on using Express Setup to install and configure the following operating systems to server.

- Microsoft® Windows Server® 2003 R2 Standard Edition / Microsoft® Windows Server® 2003 R2 Enterprise Edition

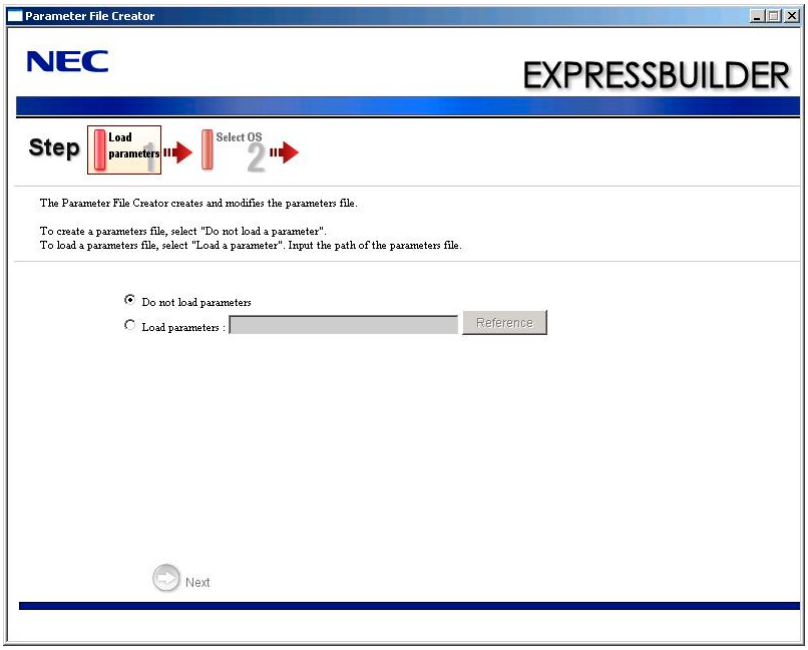
To use the server with the other operating systems described in this section, contact your service representative.

> **IMPORTANT:** Before installing the operating system, adjust the system date and time by using the BIOS setup utility "SETUP." See Chapter 4 for detail.

About Express Setup

"Express Setup" helps you to install the Windows Operating System. The setup automatically configures the RAID System and installs the Operating System and some management software.

IMPORTANT: Executing the Express Setup erases all data on the hard disk drive.



You can also use "Parameter File" at "Express Setup" in order to save or backup parameters for installation.
If you want to set up the server as before, execute the Express Setup with the parameter file you have saved before.

NOTES:

- If you want to create a parameters file, have a blank floppy disk (MS-DOS 1.44MB format) ready.
- When using a floppy disk, a USB floppy disk drive is required.
- If you want to use the drivers located on the "OEM-Disk for Mass Storage Device" that ships with optional boards, a parameters file is mandatory.
- You can create a parameters file in advance using "Parameter File Creator" included in NEC EXPRESSBUILDER.

Microsoft Windows Server 2003

This section explains how to install Microsoft® Windows Server® 2003 by using the Express Setup.

NOTES:

- Express Setup does not support the installation of Windows Server x64 Editions. If you want to install it, see Appendix B.
- If you install Windows Server 2003 without using Express Setup, see Appendix B.

Notes on Windows Installation

This section explains the notes on the Windows installation.

Confirm these notes before starting the Express Setup.

About the Windows family

This computer supports the following Windows editions:

- Microsoft® Windows Server® 2003 R2 Standard Edition / Microsoft® Windows Server® 2003 R2 Enterprise Edition (hereinafter, referred to as "Windows Server 2003")

NOTE: Express Setup does not support the installation of Windows Server 2003 x64 Editions. If you want to install it, see Appendix B.

On installing other OS, contact sales dealer or the maintenance service representative.

BIOS Settings

Confirm the BIOS settings described in Chapter 4 before installing Windows Server 2003.

Service Pack Which EXPRESSBUILDER Supports

The EXPRESSBUILDER DVD attached to the server supports following combination of the OS installation media and Service Pack.

- Windows Server 2003 R2 x64 Edition
  - OS installation media (with Service Pack 2)
  - OS installation media (No Service Pack) + Service Pack 2
  - OS installation media (No Service Pack)
- Windows Server 2003 R2
  - OS installation media (with Service Pack 2)
  - OS installation media (No Service Pack) + Service Pack 2
  - OS installation media (No Service Pack)

Supported Mass Storage Controllers

The NEC EXPRESSBUILDER DVD attached to your system supports the following mass storage controllers for installation.

> **NOTE:** If you want to install the other boards by using a driver floppy disk ("OEM-FD for Mass storage device"), except ones listed below, see "Installing with the OEM-FD for Mass storage device" and "Installing Optional Mass Storage Driver" of "Parameter File Creator" in Chapter 6.

- Controllers supporting installation of OS with Express Setup
  - LSI MegaRAID™ SAS PCI EXPRESS™ ROMB (embedded on the mother board)
- Other controllers
  - N8403-018 FibreChannel Controller*

  * Option

> **NOTES:**
>
> - The driver of option card mentioned above is stored in the EXPRESSBUILDER DVD.
> - If you use the board not mentioned above, the ExpressSetup will fail. Refer to the instructions attached to the board.

About the Hardware Components

When you install the Windows Server 2003, Express Setup requires several preparations if this computer uses the following hardware components.

Installing on the Mirrored Volume

If you want to install the Windows Server 2003 on the volume that is mirrored using "Disk Management", invalidate the mirroring and set back to the basic disk before the installation, and validate the mirroring again after the installation.

You can create, invalidate or delete the mirror volume by using "Disk Management" in "Computer Management".

Mounting MO Device

Do not mount an MO device on this computer during the Windows installation.

About Removable Media

Do not set removable media, such as DAT, into the device mounted on this computer during the Windows installation.

Connecting Hard Disk Drive

Do not connect the other hard disk drives except the drive that you want to create the Windows system drive.

If you create multiple logical drives in your system, see "Re-installing the Operating system when multiple logical drive exist" (Appendix B).

Re-installing to the hard disk drive which has been upgraded to Dynamic Disk

You cannot re-install Windows Server 2003 with the current partition of the hard disk drive upgraded to Dynamic Disk kept remained.

If you want to keep the current partition remained, see Appendix B to re-install the system.

About the System Partition Size

The system partition size can be calculated from the following formula.

Size necessary to install the system + Paging File Size + Dump File Size + Application Size
Size necessary to install the system = 3500MB (Windows Server 2003 R2)
= 3500MB (Windows Server 2003 R2 with Service Pack2)
= 5300MB (Windows Server 2003 R2 + Service Pack2 CD-ROM)
Paging File Size (Recommended) = Mounted Memory Size * 1.5
Dump File Size = Mounted Memory Size + 12MB
Application Size = Required Size

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required.
  Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- The maximum paging file size which can be set on one partition is 4095MB. If the above paging file size exceeds 4095MB, specify 4095MB for the paging file size.
- The maximum dump file size for the system with more than 2GB memory mounted is '2048MB + 12MB'.
- If you install any application program or the like, add necessary space to the partition to install these programs.

For example, if the mounted memory size is 512MB, the partition size will be calculated by the above formula as follows:

3500MB + (512MB * 1.5) + (512MB + 12MB) + Application Size
= 4792MB + Application Size

Dividing into the partition of the recommended size into multiple disks as written below will solve problem that it cannot be reserved in one disk.

1. Set the "Size required for installation + Paging file size".
2. See Chapter 5 and set that debugging information (equivalent to the dump file size) is to be written to a separate disk.

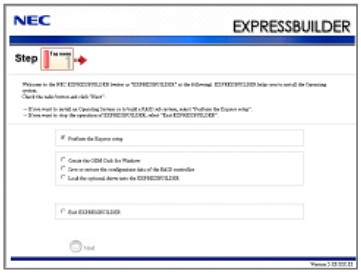
   (If the disk does not have enough free space to enable the dump file size to be written, then after installing the system using the "Size required for installation + Paging file size", install an additional new disk.)

Installing the Service Pack

When installing Windows Server 2003 R2, it is not necessary to install the Service Pack 1.

FLOW OF SETUP

This section visually describes the flow of the setup operated by Express Setup.



Loading parameters (Step 2)

Skip

Next

Select the operating system (Step 3)

Next

RAID configuration (Step 4)

Next

Windows Confirm Setting / Input
(Steps 5 to 10)

Next

Save parameters (Step 11)

Next

Start Express Setup (Step 12)

Perform

RAID Configuration

Create the OS partition / format

Copying Windows driver
↓
Copying Selected Application

Remove the Floppy Disk and CD/DVD-ROM from the Drive

Insert Windows CD-ROM

Agree Software License Agreement

Install OS Automatically
↓
Log on Automatically

The installation is completed.

: Process that needs to input or select

: Process that proceeds automatically

INSTALLING THE WINDOWS SERVER 2003

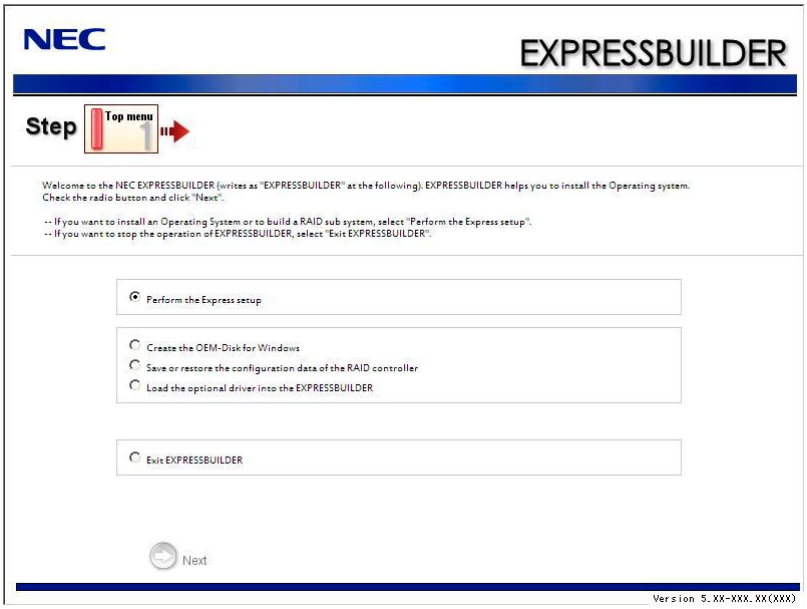
Express Setup proceeds the setup by selecting or inputting several parameters on the wizard. You can also save the parameters to a floppy disk as a parameters file.

1. Turn the power of peripheral device on, and then turn on the server.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive of the server.
3. Press the RESET switch or press **Ctrl**, **Alt**, and **Delete** to reboot from the NEC EXPRESSBUILDER. (You may also turn off and then on again to reboot the server.)

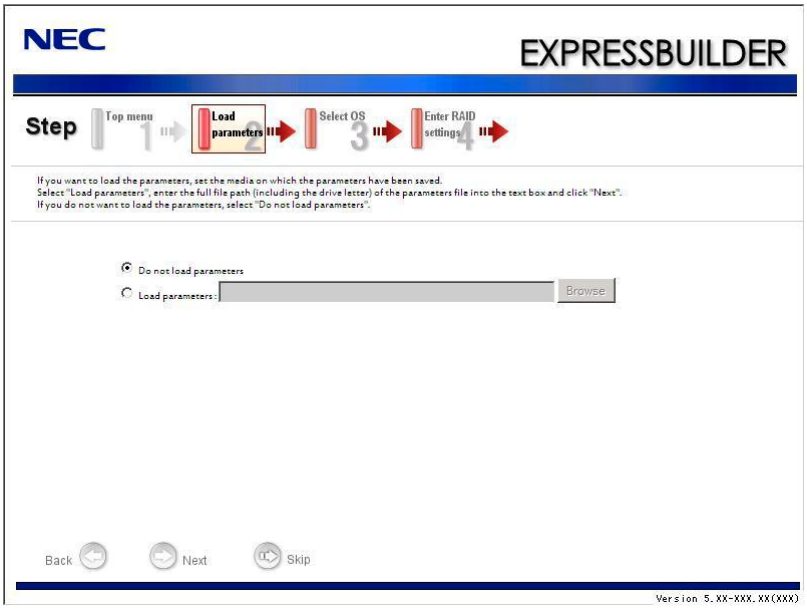
   The system will boot from the DVD and NEC EXPRESSBUILDER starts.

   Select "Os installation *** default ***" from the Boot selection menu. (If you do not hit any key, "Os installation" is selected automatically.)

   The Top menu will appear.
4. Select [Perform the Express setup] from the Top Menu, click [Next].


NEC
EXPRESSBUILDER
Step
Top menu
Welcome to the NEC EXPRESSBUILDER (writes as "EXPRESSBUILDER" at the following). EXPRESSBUILDER helps you to install the Operating system.
Check the radio button and click "Next".
-- If you want to install an Operating System or to build a RAID sub system, select "Perform the Express setup".
-- If you want to stop the operation of EXPRESSBUILDER, select "Exit EXPRESSBUILDER".
Perform the Express setup
Create the OEM-Disk for Windows
Save or restore the configuration data of the RAID controller
Load the optional driver into the EXPRESSBUILDER
Exit EXPRESSBUILDER
Next
Version 5.XX-XXX.XX(XXX)

5. [Load parameters] steps are displayed.


NEC
EXPRESSBUILDER
Step
Top menu
Load parameters
Select OS
Enter RAID settings
If you want to load the parameters, set the media on which the parameters have been saved.
Select "Load parameters", enter the full file path (including the drive letter) of the parameters file into the text box and click "Next".
If you do not want to load the parameters, select "Do not load parameters".
Do not load parameters
Load parameters:
Browse
Back
Next
Skip
Version 5.XX-XXX.XX(XXX)

[Do not load parameters]

(1) Select [Do not load parameters].

(2) Click [Next].

NOTE: If a floppy disk drive is not connected, select this item.

[Load parameters]

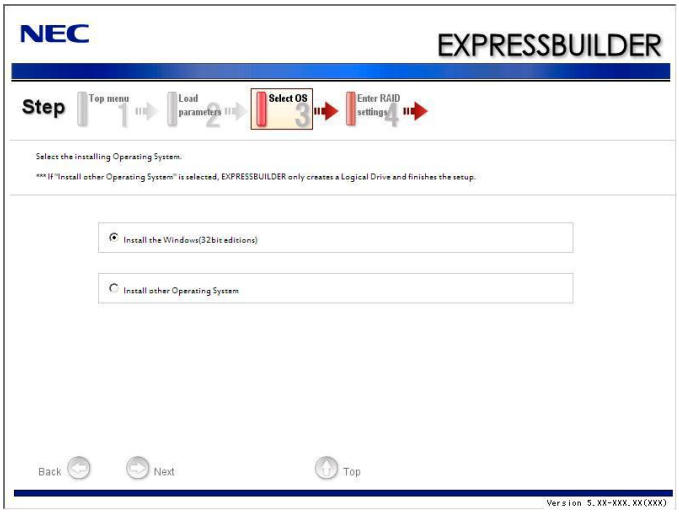
(1) Insert the floppy disk containing the parameters file.

(2) Select [Load parameters], enter the file path of the parameters file into the text box.

(3) Click [Next].

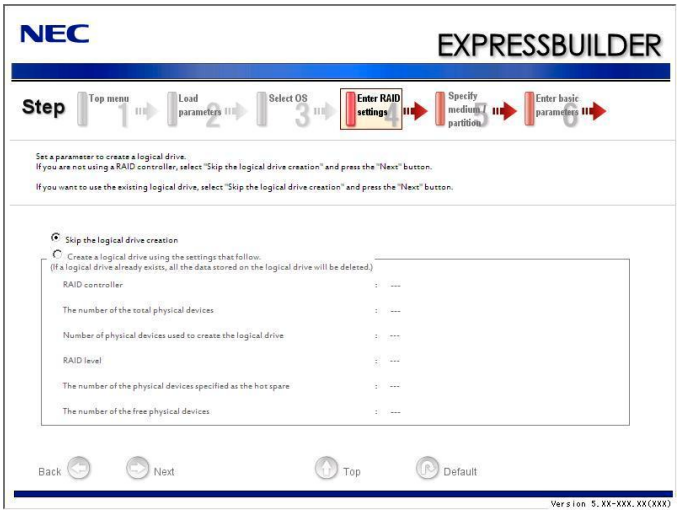
6. Select the installing Operating System.

Select [Install the Windows (32bit editions)] from the menu, click [Next].



7. Enter the setting of a logical drive.

[Enter RAID settings] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

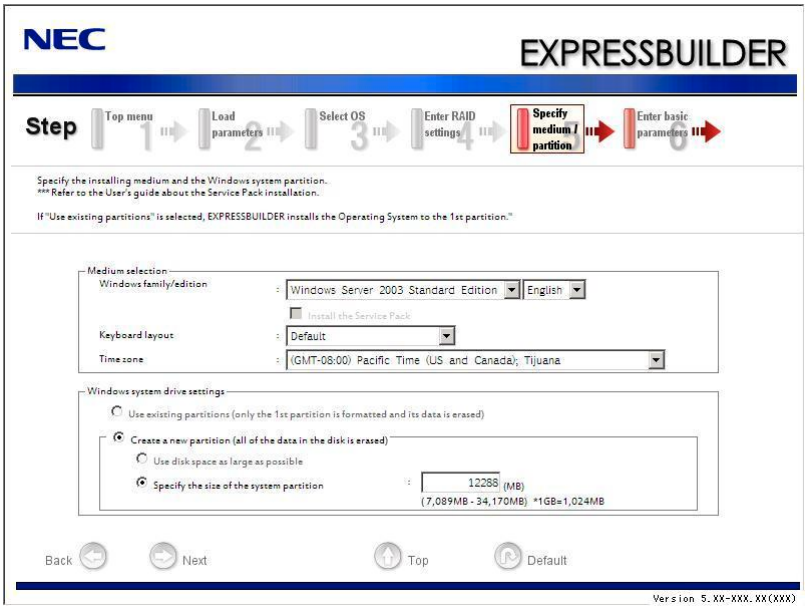

NEC
EXPRESSBUILDER
Step
Top menu
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Set a parameter to create a logical drive.
If you are not using a RAID controller, select "Skip the logical drive creation" and press the "Next" button.
If you want to use the existing logical drive, select "Skip the logical drive creation" and press the "Next" button.
Skip the logical drive creation
Create a logical drive using the settings that follow.
(If a logical drive already exists, all the data stored on the logical drive will be deleted.)
RAID controller
The number of the total physical devices
Number of physical devices used to create the logical drive
RAID level
The number of the physical devices specified as the hot spare
The number of the free physical devices
Back
Next
Top
Default
Version 5.XX-XXX.XX(XXX)

NOTES:

- You can use only the physical devices that have same model number to configure logical drive.
- If the process is not finished normally, the driver may not be stored in the EXPRESSBUILDER. Refer to "Optional Board Supported by NEC EXPRESSBUILDER" described earlier in this chapter.

8. Specify the installing medium and the Windows system partition.

[Specify medium / Partition] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].


NEC
EXPRESSBUILDER
Step
Top menu
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Specify the installing medium and the Windows system partition.
*** Refer to the User's guide about the Service Pack installation.
If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition."
Medium selection
Windows family/edition
Windows Server 2003 Standard Edition
English
Install the Service Pack
Keyboard layout
Default
Time zone
(GMT-08:00) Pacific Time (US and Canada); Tijuana
Windows system drive settings
Use existing partitions (only the 1st partition is formatted and its data is erased)
Create a new partition (all of the data in the disk is erased)
Use disk space as large as possible
Specify the size of the system partition
12288 (MB)
(7,089MB - 34,170MB) *1GB=1,024MB
Back
Next
Top
Default
Version 5.XX-XXX.XX(XXX)

IMPORTANT:

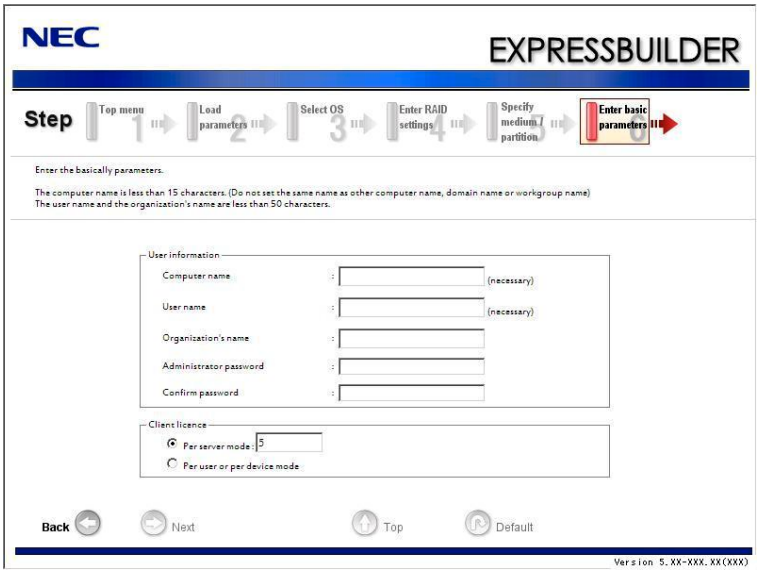
- About partition size
  - Specify the partition size larger than required minimum size for OS installation.
  - Do not specify larger partition size than the capacity of connected hard disk drive.
  - You can not specify the partition size larger than 2,097,152MB (2TB) at RAID system.
- If you select "Create a new partition" at "Windows system drive settings", the contents of the hard disk will be all deleted.
- If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition (1st partition is deleted). The data in the other partition is kept if the system has two or more partitions. (See the figure below.)

First Partition Deleted	Second Partition Retained	Third Partition Retained

- You can not re-install the system with the existing partition that is upgraded to Dynamic Disk remained. Do not select "Use existing partitions" at "Windows system drive settings".

9. Enter the user information and client license mode.

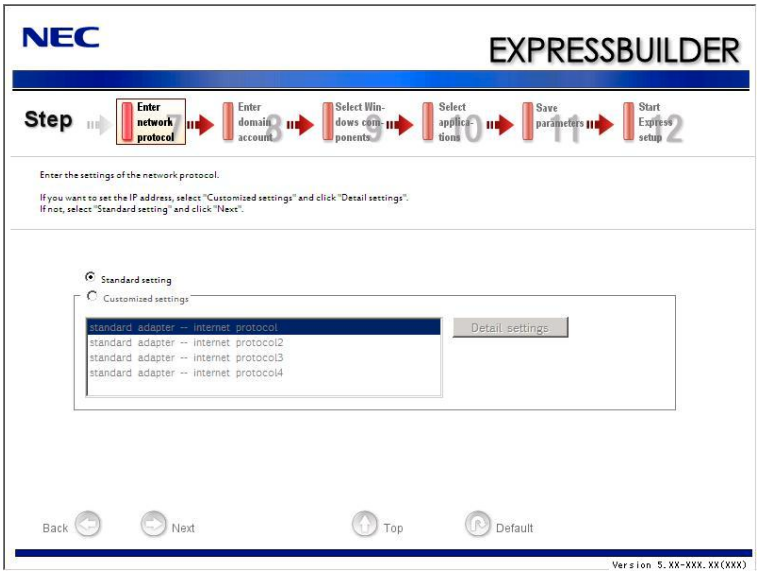
[Enter basic parameters] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



NOTE: Even if you do not input value into "Administrator password", "Confirm password", "●●●●●●" is displayed.

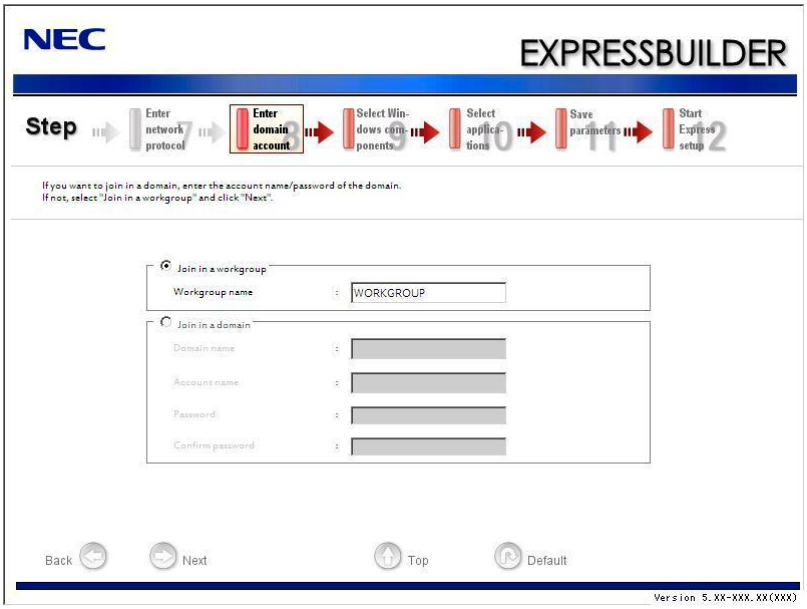
10. Enter the setting of the network protocol.

[Enter Network Protocol] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



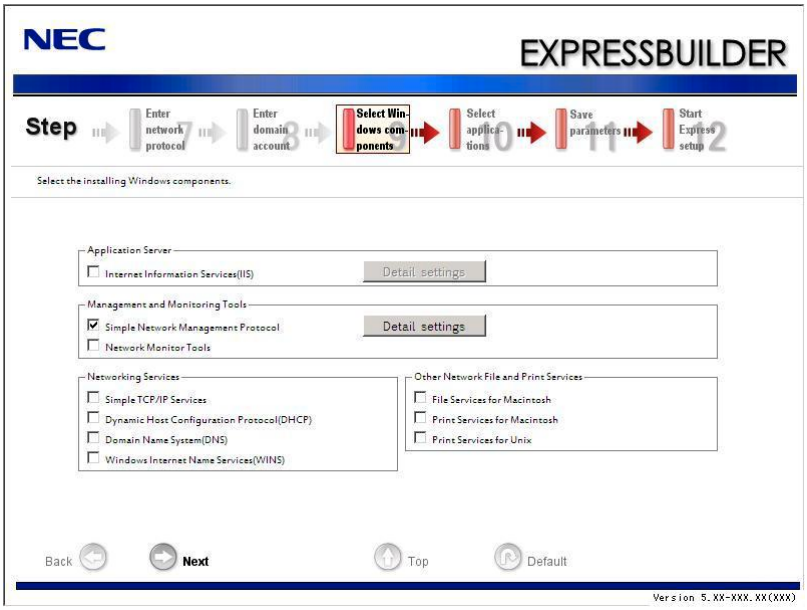
11. Enter the domain or workgroup name to be used.

[Enter domain account] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



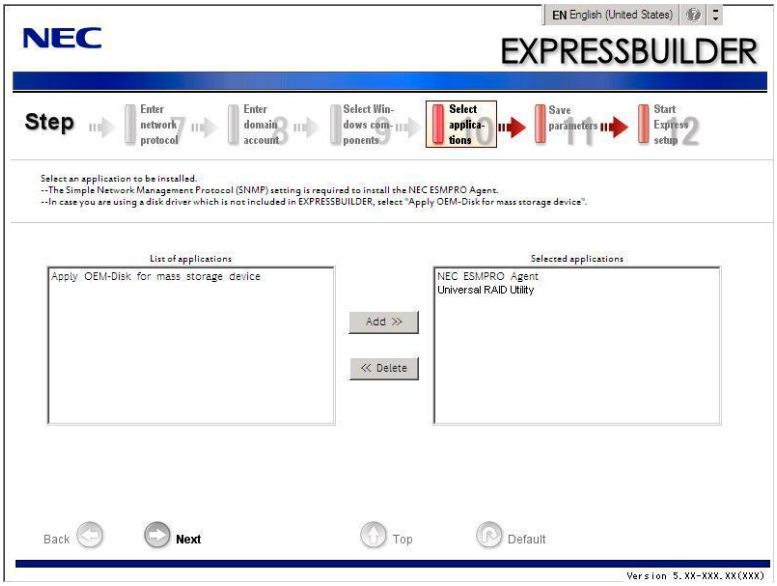
12. Select the installing components.

[Select Windows components] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



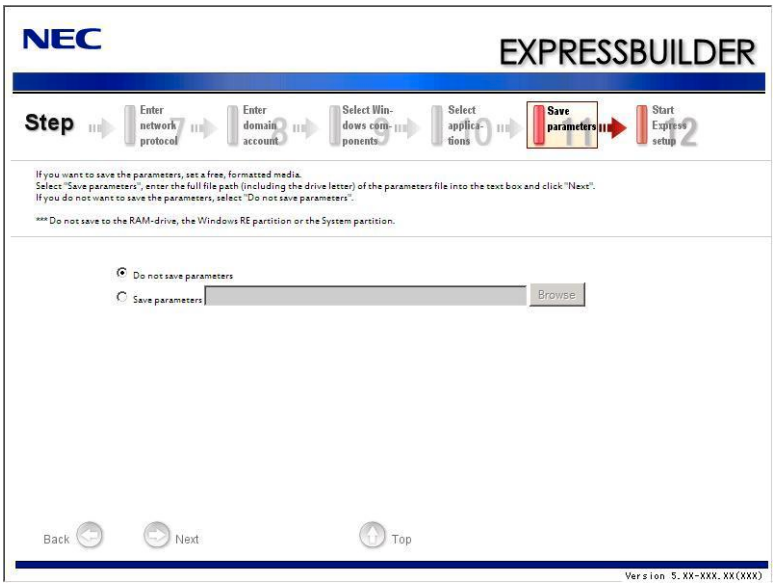
13. Select the installing applications.

[Select applications] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



14. Save the parameters.

[Save parameters] steps are displayed.

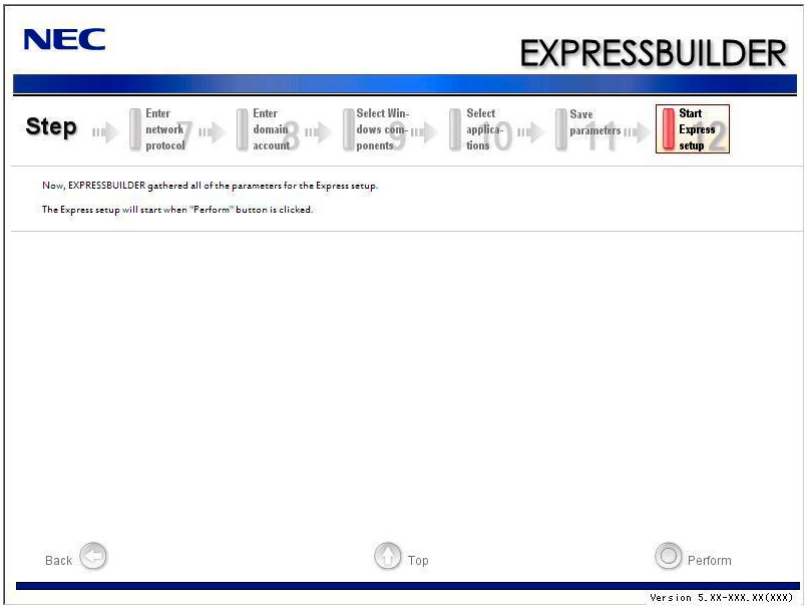

NEC
EXPRESSBUILDER
Step
Enter network protocol
Enter domain account
Select Windows components
Select applications
Save parameters
Start Express setup
If you want to save the parameters, set a free, formatted media.
Select "Save parameters", enter the full file path (including the drive letter) of the parameters file into the text box and click "Next".
If you do not want to save the parameters, select "Do not save parameters".
***Do not save to the RAM-drive, the Windows RE partition or the System partition.
Do not save parameters
Save parameters
Browse
Back
Next
Top
Version 5.XX-XXX.XX(XXX)

If you want to save the parameters , set the free formatted floppy disk.

Select [Save parameters], enter the file path of the parameters files into the text box and click [Next].

If not, select [Do not save parameters].

15. The Express Setup will start when you click [Perform] in [Start Express setup] step.



16. Copy optional Mass Storage Driver module.

If you install optional Mass Storage Driver, the message will be shown.

Insert CD-ROM or floppy disk attached to the Mass Storage Driver and proceed operation according to the message.

17. Remove NEC EXPRESSBUILDER DVD from the optical disk drive according to the message.

If you proceed the setup by using setup parameter file, remove the floppy disk from the floppy disk drive.

Insert Windows Server 2003 CD-ROM into the optical disk drive.

[Agree Software License Agreement] screen appears.

18. Read the contents carefully and click [Yes] if you do agree. If you do not agree, click [No].

IMPORTANT:

- If you do not agree to this agreement, the setup terminates and Windows Server 2003 will not be installed.
- If "NetWare Gateway (and Client) Service" is specified to install, the window to specify the details of "NetWare Gateway (and Client) Service" pops up on the first logon. Specify the appropriate value.

Windows Server 2003 and selected applications will be installed automatically and rebooted several times.

After rebooting, it logs on to the system automatically.

19. If you install Microsoft Windows Server 2003 R2, insert Microsoft Windows Server 2003 R2 Standard Edition DISC 2 or Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 into the optical disk drive after the OS installation.

Hereinafter, proceed operations according to the message.

When the installation has finished, remove Microsoft Windows Server 2003 R2 Standard Edition DISC 2 or Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 from the optical disk drive, and restart the system.

Now the Setup using Express Setup has completed.

INSTALLING AND SETTING DEVICE DRIVERS

Follow these steps to install and configure the device drivers.

PROSet

NOTE: All of the operation that related to Intel® PROSet is must be executed by administrator privileges. Operation by [Remote Desktop Connection] is prohibited.
Without changing any parameter when opened the properties of adapter teaming, please click the [Cancel] button for close the dialog. Click [OK] button will cause temporary loss of network connectivity.

PROSet is a utility that confirms the function of network contained in network driver.

Utilizing PROSet enables the following items:

- Confirm detailed information of the adapter.
- Diagnose loop back test, packet transmission test and so on.
- Setup of teaming.

Configuring several network adapters as one team provides the server a tolerant environment on any trouble and enhances throughput between the switches.

PROSet is necessary to utilize these features.

Follow the procedure below to install PROSet.

1. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive.

   If the autorun menu is displayed, close menu screen.

2. The [Windows Explorer] dialog starts.

   * The procedure in the case of the standard start menu

     Click Start menu and click [Windows Explorer].

   * The procedure in the case of the classic start menu

     Click Start menu, point to [Programs], [Accessories] and click [Windows Explorer].

3. Run "dxsetup.exe" in the following directory.

   \002\win\winnt\dotnet\dl3\proset\win32

   The [Intel® PROSet - InstallShield Wizard] dialog starts.

4. Click [Next].

5. Choose "I accept the terms in the license agreement" and click [Next].

6. Click [Next].

7. Choose "I accept the terms in the license agreement" and click [Next].

8. Click [Install].
9. When [InstallShield Wizard Completed] window is displayed, click [Finished].
10. Remove the NEC EXPRESSBUILDER DVD from the optical disk drive, restart the system.

NOTE: It is recommend to add [Network Monitor] at [Adding Services]. [Network Monitor] can monitor the frame (or the packet) that the computer installing [Network Monitor] sends or receives. This tool is valuable when analyzing network trouble. For information on how to install the tool, see the "Setting for Solving Problems" described later in this chapter.

Optional Network Board Driver

If you want to utilize optional Network Board (N8403-017/020), install the driver stored in NEC EXPRESSBUILDER DVD.

In case of utilizing (N8403-017/020)

"\002\win\winnt\dotnet\dl3\pro1000\win32"

If the procedure of installation is not clear, refer to the installation procedure described in the section "Installation of the Optional Network Board Driver".

Installation of the Optional Network Board Driver

1. Start Device Manager.
2. Click [Network adapters] and double-click [(Network Adapter Name)].

   [(Network Adapter Name) Properties] appears.

   NOTE: [(Intel(R) PRO/1000...)] is the name of On-Board adapter. All other names show the Optional Network Board.

3. Click [Driver] tab and click [Update Driver...]. [Hardware Update Wizard] appears.
4. Select the [Install from a list or specific location (Advanced)] radio button and click [Next].
5. Select the [Search for the best driver in these locations] radio button and check off the [Search removable media (floppy, CD-ROM...)] check box.
6. Check the [Include this location in the search] check box and when using [(N8403-017/020)], specify [\002\win\winnt\dotnet\dl3\pro1000\win32].

   Then click [Next].
7. Click [Finish].

Adapter Fault Tolerance (AFT)/Adaptive Load Balancing (ALB)

Adapter Fault Tolerance (AFT) is a feature that creates a group containing more than one adapter.

With this feature, when the working adapter gets any problem, the process on it is automatically transferred to the other adapter in the group.

Adaptive Load Balancing (ALB) is a feature that creates a group containing more than one adapter and enhances the throughput by operating packet transmission from the server by all the adapters.

This feature includes AFT feature.

IMPORTANT:

- All the adapters specified as a group of Adapter Teaming must exist on the same LAN. If they are connected to the separate switches, they will not work normally.
- The adapters specified as a group of Adaptive Load Balancing (ALB) can be connected to only Switching Hub.
- When exchange the mother board or option network card, make sure to remove the adapter team before exchanges and recreate the adapter team after exchange complete.
- Verify that the switch fully supports the IEEE 802.3ad standard before using IEEE802.3ad Link Aggregation (DLA).

Setup Teaming

IMPORTANT: AFT/ALB setting must be do after System Update completed.

1. Open the [Device Manager].
2. Open [Network adapters] → [Intel(R)xxx] properties.
3. Click [Teaming] tab and check the [Team this adapter with other adapters] check box.

   Click [New Team].
4. Fill the name of the team in [Specify a name for the team] and click [Next].
5. Include the adapter to the team and click [Next].
6. Select a team type ([Adapter Fault Tolerance]/[Adaptive Load Balancing]).

   Click [Next].
7. Click [Finish].

8. Click [TEAM:"Team name"] from [Device manager] → [Network adapters] to modify the team.

   Click [Settings] tab and click [Modify Team] button.

9. Refer to the following procedure to set the team member adapter priority status.

   – Set Primary
     Point the adapter and click [Set Primary] button.

   – Set Secondary
     Point the adapter and click [Set Secondary] button.

   NOTE: Adapter priority config can be confirmed by the following procedure

   1. Click [TEAM:"Team name"] from [Device manager] → [Network adapters].
   2. Click [Settings] and confirm Adapters in team list.

10. Click [Test Switch] → [Run test] to confirm the adapter team is properly setup.

    Confirm the result in [Test results]

11. Reboot the system.

Remove Team

1. Open the [Device Manager].
2. Click [Network adapters], and open [TEAM:"Team name"] properties.
3. Click [Setting] tab.
4. Click [Remove Team] button.
5. Click [Yes] to the message.
6. Confirm [TEAM:"Team name"] adapter in not existing in [Network adapters] tree and reboot the system.

Setting WOL

Refer to the following procedure to enable WOL.

When PROSet is not installed

1. Start Device Manager.
2. Point to [Network adapters] and double click [Intel(R)xxxx] to open the adapter [Properties].
3. Click [Power management] tab and check in the following items check boxes.
   - Allow the computer to turn off this device to save power.
   - Allow this device to bring the computer out of standby.
4. Click [Advanced] tab and point to [Enable PME].
5. Set the "Enable" in [Value].
6. Click [OK].
7. Reboot the system.

When PROSet is installed

1. Start Device Manager.
2. Point to [Network adapters] and double click [Intel(R)xxxx] to open the adapter [Properties].
3. Click [Power management] tab and check in the following items check boxes.
   - Wake On Directed Packet
   - Wake On Magic Packet
   - Wake on Magic Packet from power off state

   NOTE: "Wake On Directed Packet" and "Wake On Magic Packet" is already checked in default set.
4. Click [OK].
5. Reboot the system.

Graphics Accelerator Driver

If you utilize standard graphics accelerator drivers, update your system with NEC EXPRESSBUILDER DVD attached to your system.
Standard graphics accelerator drivers will be installed automatically.

Please follow the following procedure when you want to reinstall the driver individually.

1. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive.

   If the autorun menu is displayed, close menu screen.

2. Click Start menu, point to [Programs], [Accessories] and click [Windows Explorer].

3. Run "setup.exe" in the following directory.

   \002\win\winnt\dotnet\video\install.bat

4. Follow the message to continue the installation.

   If the dialog message "Digital Signature could not been found." appears, select [Yes] to continue.

5. Remove the NEC EXPRESSBUILDER DVD from the optical disk drive, restart the system.

Installing N8403-018 FibreChannel Controller

If you utilize FibreChannel Controller driver (N8403-018), update your system with NEC EXPRESSBUILDER DVD attached to your system.

The FibreChannel Controller driver will be installed automatically.

Available switch options for Windows Server 2003 Boot.ini file

Many different switches will be available if you edit Boot.ini file.

For the available switch options, refer to the following information:

- Microsoft Knowledge Base - Article ID: 833721

  "Available switch options for the Windows XP and the Windows Server 2003 Boot.ini files"

If your system has a memory capacity in excess of 4GB in its installing, adding /PAE switch in Boot.ini file will enable the system to be installed with over 4GB of memory.

However, the Microsoft operating system products which support /PAE switch option are limited.

Refer to the following article in Microsoft Knowledge Base to check the supported products.

- Microsoft Knowledge Base - Article ID: 291988

  "A description of the 4GB RAM tuning feature and the Physical Address Extension switch"

Below is the example on how to add /PAE switch to Boot.ini file.

1. Click [Start], point to [Settings], and then click [Control Panel].
2. In [Control Panel], double-click [System].
3. Click the [Advanced] tab, and then click [Settings] under [Setup and Recovery].
4. Under [System Setup], click [Edit] to open [Boot.ini].
5. Add "/PAE" to [Operating Systems] section in [Boot.ini] file, and then save it.

   <Example of Boot.ini file>

   ```
   [boot loader]
   timeout=30
   default=multi(0)disk(0)rdisk(0)partition(2)\WINDOWS
   [operating systems]
   multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Windows Server 2003" /fastdetect
   multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Windows Server 2003, PAE" /fastdetect
   /PAE
   C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
   ```

   This is the end of editing Boot.ini file.

NOTE: If you choose one of the items in the "Default operating system" drop-down list box in [Setup and Recovery] group box, you can make your system start automatically from the switch you specified.

SETTING FOR SOLVING PROBLEMS

Setup the following issue in advance so that your computer can recover from any trouble precisely and as soon as possible when it should occur.

Memory Dump (Debug Information)

This section describes the procedures for collecting memory dump (debug information) in the server.

IMPORTANT: Cautions for the Memory Dump

- The staff of maintenance service representative is in charge of collecting memory dump. Customers need only to specify the memory dump.
- If any trouble occur after specifying the process below, the message to inform that the system is in short of virtual memory may appear, but continue to start the system. If you restart the system in such case, memory dump may not be stored correctly.

Follow the procedure below to specify.

1. Select [Control Panel] and click [System].

   The [System Properties] dialog box appears.

2. Select [Advanced] tab.
3. Click [Settings] on the [Startup and Recovery] group box.

IMPORTANT:

Windows Server 2003 x64 Editions

- To specify "Complete Memory Dump" to write the debug information is recommended.
  If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 1MB".
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

Windows Server 2003

- To specify "Complete Memory Dump" to write the debug information is recommended.
  If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 12MB"(In case the memory capacity is more than 2GB, a free area of "2048+12MB" or more).
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

4. Specify "Complete memory dump" and modify [Dump file:] in the [Write debugging information] group box.

   e.g. Write the debug information in D drive write the file name "MEMORY.DMP".

   D:\MEMORY.DMP

5. Click [Settings] on the [Performance] group box.

   The [Performance Options] window appears.

6. Click [Advanced] tab on the [Performance Options] window.

7. Click [Change] on the [Virtual memory] group box.

8. Modify [Initial Size] in the [Paging file size for selected drive] box to the value larger than the value of [Recommended] in the [Total paging file size for all drives], and click [Set].

   IMPORTANT:

   - The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required.
     Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
   - For more information on "Recommended" value, see "About the System Partition Size" described earlier.
   - In case the memory is expanded, re-specify the paging file to suit the new memory size.

9. Click [OK].

   The message to restart the system may appear according to the modified specification. In such case, follow the message to restart the system.

Windows Dr. Watson

Windows Dr. Watson is a debugger for application errors. If any application error is detected, Dr. Watson diagnoses the server and logs diagnostic information (log). Follow the procedure below and specify Dr. Watson to collect diagnostic information.

1. Click [Run] on Start menu.
2. Type "drwtsn32.exe" in the [Open] box, and click [OK].

   The [Dr. Watson for Windows] dialog box appears.
3. Specify the location to store the diagnostic information in the [Log File Path] box.

   The diagnostic information will be stored with the file name "DRWTSN32.LOG".

   NOTE: You can not specify network path. Specify the path on local computer.
4. Specify the location of crash dump file in the [Crash Dump] box.

   NOTE: "Crash Dump File" is a binary file that can be read with Windows Debugger.
5. Check the following check box on the [Option] box.

   ☐ Dump Symbol Table
   ☐ Dump All Thread Contexts
   ☐ Add To Existing Log File
   ☐ Create Crash Dump File

   For more information on each function above, refer to Online Help.
6. Click [OK].

Network Monitor

Utilizing Network Monitor helps you to investigate and manage with network trouble. To utilize Network Monitor, you need to restart the system after the installation has completed, so we recommend to install Network Monitor before any network trouble may occur.

1. Point to [Settings] from Start menu and click [Control Panel].

   The [Control Panel] dialog box appears.

2. Double-click [Add or Remove Programs].

   The [Add or Remove Programs] dialog box appears.

3. Click [Add/Remove Windows Component].

   The [Windows Components Wizard] dialog box appears.

4. Click [Management and Monitoring Tools] and then click [Details].

   The [Management and Monitoring Tools] dialog appears.

5. Click to select the [Network Monitor Tools] check box, and then click [OK].
6. The [Windows Components Wizard] dialog box appears again, so click [Next].
7. If the setup asks to install the disk, insert the OS CD-ROM into optical disk drive and click [OK].
8. Click [Finish] in the [Windows Component Wizard] dialog box.
9. Close the [Add or Remove Programs] dialog box.
10. Close the [Control Panel] dialog box.

To start Network Monitor, point to [Program] → [Administrative Tools] and click [Network Monitor]. For information on how to operate Network Monitor, refer to Online Help.

INSTALLING MAINTENANCE UTILITIES

Various maintenance utilities are contained in your NEC EXPRESSBUILDER DVD. See Chapter 6 for installing the utilities to your server or management workstations.

UPDATING THE SYSTEM

"Updating the System" is executed by Express Setup automatically.

Execute "Updating the System" in following cases.

- Modified system configuration.
- Recovered the system using recovery process.

See "Updating the System - Applying Service Pack -" section in Appendix B for detail of update process.

MAKING BACKUP COPIES OF SYSTEM INFORMATION

The system information includes the current BIOS settings and any specific information for the server.

Save the information after completing the system setup.

Without the backup data, you will not be able to recover the information.

You can save the information by the following process.

1. Insert the "NEC EXPRESSBUILDER" DVD into the optical disk drive and reboot the system.
2. Select [Tool menu (Normal mode)].
3. Select [English].
4. Select [Maintenance Utility].
5. Select [System Information Management].
6. Insert a floppy disk into the floppy disk drive.
7. Select [Save].

Installing with the OEM-FD for Mass Storage Device

This section explains how to setup with the OEM-FD. You usually do not have to do as follows. If your system has any Mass storage devices, you have to set as follows depending on your system. The detailed information is provided by the manual of the Mass storage device.

Installation of Mass storage device not to be supported by Express Setup

If you would like to install or re-install the OS when the system has new mass storage device not to be supported by NEC EXPRESSBUILDER, you have to set as follows.

1. Read the manual supplied with the mass storage device before setting the server.
2. If the mass storage device is RAID Controller, configure the RAID System before running the NEC EXPRESSBUILDER.
3. Boot the system from NEC EXPRESSBUILDER DVD.
4. Select [Load the optional driver into the EXPRESSBUILDER] from the Top menu, click [Next].

   Setting the driver disk for the mass storage controller. Press the "Perform" button.

   NOTE: By choosing this option, you can load the driver provided by CD-ROM or floppy disk to proceed with the Express Setup.

5. Perform Express Setup with the following settings.

   (a) When "Enter RAID settings" appears, check "Skip the logical drive creation".

   (b) Select "Apply OEM-Disk for Mass storage device".

6. Copy the driver for the mass storage device in the Express Setup.

   Insert the floppy disk attached the mass storage device into the floppy disk drive.

   Continue the Express Setup, referring to messages displayed on the display.

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Chapter 6

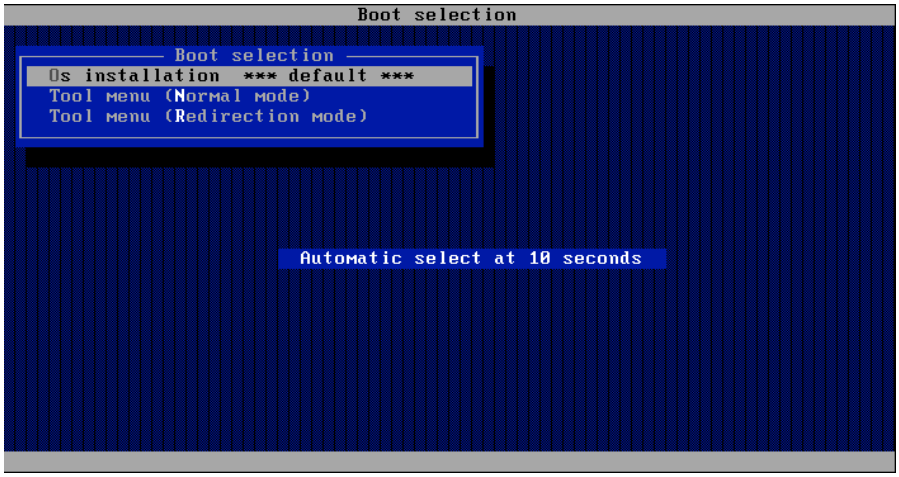
Installing and Using Utilities

This section describes how to use the NEC EXPRESSBUILDER DVD that comes with your server and to install the utilities stored on the NEC EXPRESSBUILDER.

NEC EXPRESSBUILDER

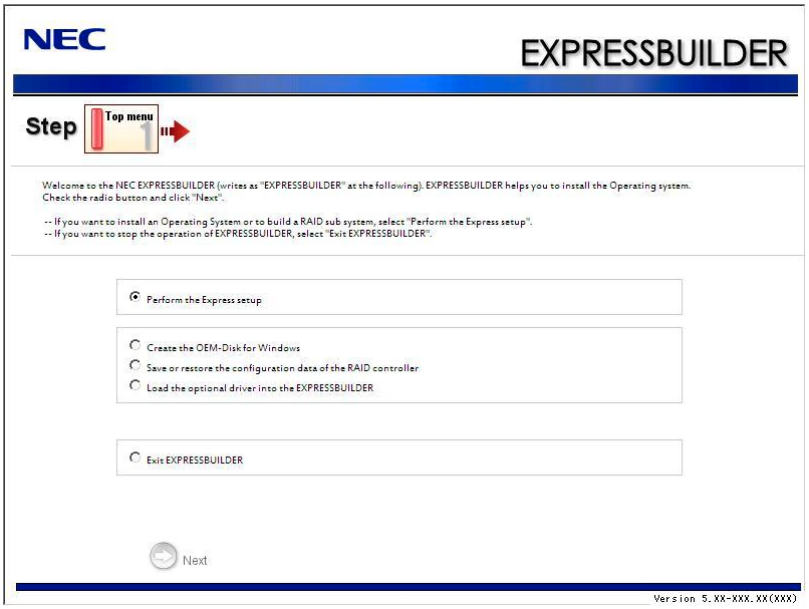
The NEC EXPRESSBUILDER (referred to as "EXPRESSBUILDER" hereinafter) helps you install the Operating system/the Management software or use the maintenance utilities.

When you insert the EXPRESSBUILDER disk into the DVD drive and reboot the system, the following menu appears.



■ Os installation

If you select this item, the Top menu appears.


NEC
EXPRESSBUILDER
Step
Top menu
Welcome to the NEC EXPRESSBUILDER (writes as "EXPRESSBUILDER" at the following). EXPRESSBUILDER helps you to install the Operating system.
Check the radio button and click "Next".
-- If you want to install an Operating System or to build a RAID sub system, select "Perform the Express setup".
-- If you want to stop the operation of EXPRESSBUILDER, select "Exit EXPRESSBUILDER".
Perform the Express setup
Create the OEM-Disk for Windows
Save or restore the configuration data of the RAID controller
Load the optional driver into the EXPRESSBUILDER
Exit EXPRESSBUILDER
Next
Version 5.XX-XXX.XX(XXX)

IMPORTANT:

- This tool is Configuration Tool that built on Windows PE 2.0 technology.
  Pay attention to the automatic reboot that occurs after 72 hours from start.
- The configuration with Windows PE 2.0 supports Windows Server 2003 (32bit) and Windows Vista Business (32-bit (x86)), but the other operation is not supported.

You can use the Express Setup (see Chapter 5) or the following functions from this menu.

– Create the OEM-Disk

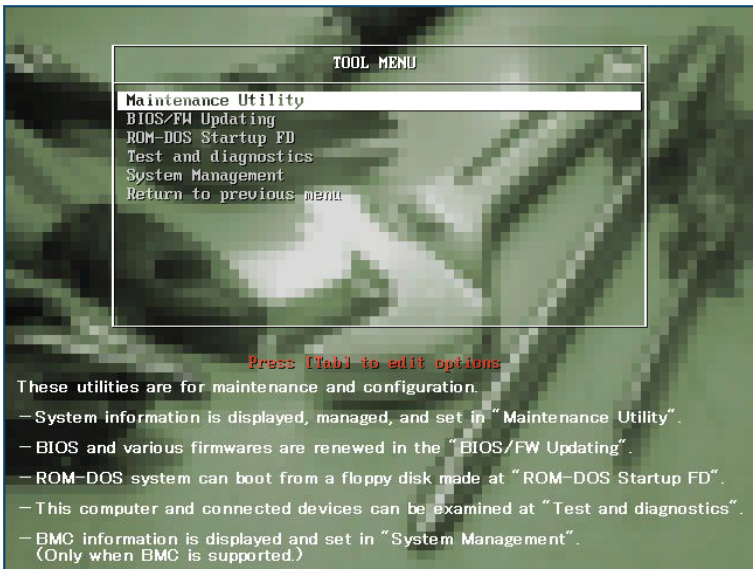
  You can create the Windows OEM-Disk to use at the Windows manual setup.

– Load the driver

  This function is not usually used. If you add the new device to the server, this function may use. (See Chapter 5.)

■ Tool menu (Normal Mode)

If you select this item, the Tool menu appears.


TOOL MENU
Maintenance Utility
BIOS/FW Updating
ROM-DOS Startup FD
Test and diagnostics
System Management
Return to previous menu
Press [Tab] to edit options
These utilities are for maintenance and configuration.
－System information is displayed, managed, and set in "Maintenance Utility".
－BIOS and various firmwares are renewed in the "BIOS/FW Updating".
－ROM-DOS system can boot from a floppy disk made at "ROM-DOS Startup FD".
－This computer and connected devices can be examined at "Test and diagnostics".
－BMC information is displayed and set in "System Management".
(Only when BMC is supported.)

You can use the below functions for maintenance.

– Maintenance Utility

  The Maintenance Utility is usually used by the service representative. (See Chapter 8.)

– BIOS/FW Updating

  You can update the system BIOS by using the floppy disk (prepare a 3.5" floppy disk).

– ROM-DOS Startup FD

  The ROM-DOS Startup FD is used for starting the ROM-DOS system.

– Test and diagnostics

  This function allows you to diagnose this computer. (See Chapter 7.)

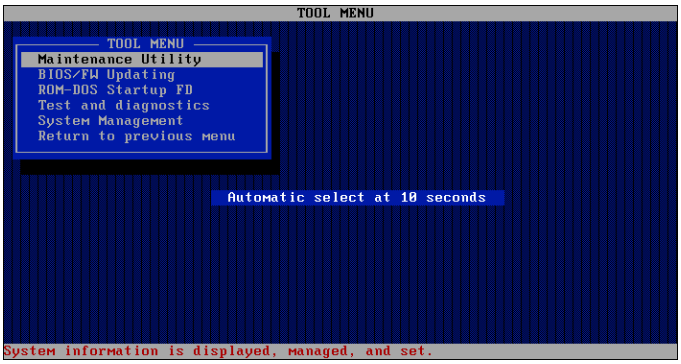
– System Management

  You can configure the parameters of BMC (Baseboard Management Controller).

■ Tool menu (Redirection Mode)

If you want to operate this computer via the BIOS redirection (the console-less function), select this item.

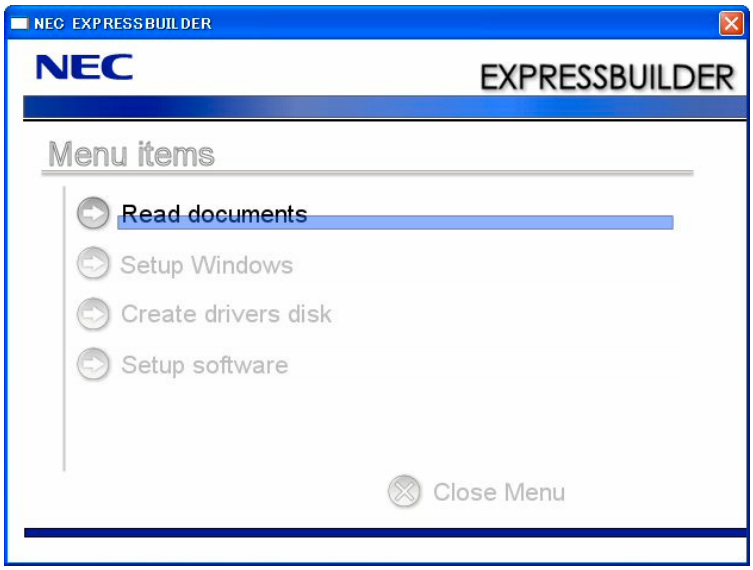
NOTE: If you operate this computer via the Remote KVM function, select the "Tool menu (Normal mode)".



The menu's functions are the same as the "Tool menu (Normal Mode)".

Autorun Menu

When the EXPRESSBUILDER disk is inserted into the DVD drive, Windows automatically launches the menu as shown below.



This menu is used to,

- Read the User's Guide or the other documents,
- Update the server system (Windows drivers), and
- Install the management software.

NOTES:

- This menu requires Microsoft Windows XP, Vista or Windows Server 2003 (or later).
- This menu is not available for Microsoft Windows 2008 Server Core environment.
- Some documents are provided in PDF format. Use the Adobe Reader to view or print these documents.

If the menu does not appear, select "My computer" by using the Explorer, and double-click the icon of the DVD drive that contains the EXPRESSBUILDER DVD.

Some menu items are grayed-out when the logon user does not have the authority of the administrator or the menu item is not available for your system.

To use the menu,

- Click on the menu items, or
- Click the right mouse button on the menu window.

PARAMETER FILE CREATOR

"Parameter File Creator" is a tool to create [Parameter file] that is used for configuring the server with the Express Setup (see Chapter 5 for details).

If you use the Parameter file created by the Express Setup and Parameter File Creator to operate the setup, you can setup from the installation of OS to several utilities automatically except for a few key input to confirm the specification. Also, you can install the system with the same specification as before when re-installing the system. We recommend you to create [Parameter file] to setup the servers from NEC EXPRESSBUILDER.

When using a floppy disk, a USB floppy disk drive is required.

IMPORTANT: You can not create [Parameter file] for Microsoft Windows Server 2003 x64 Editions.

NOTE: You can install Windows Server 2003 without [Parameter file]. Also, you can modify/newly create [Parameter file] during the setup with NEC EXPRESSBUILDER.

Parameter File

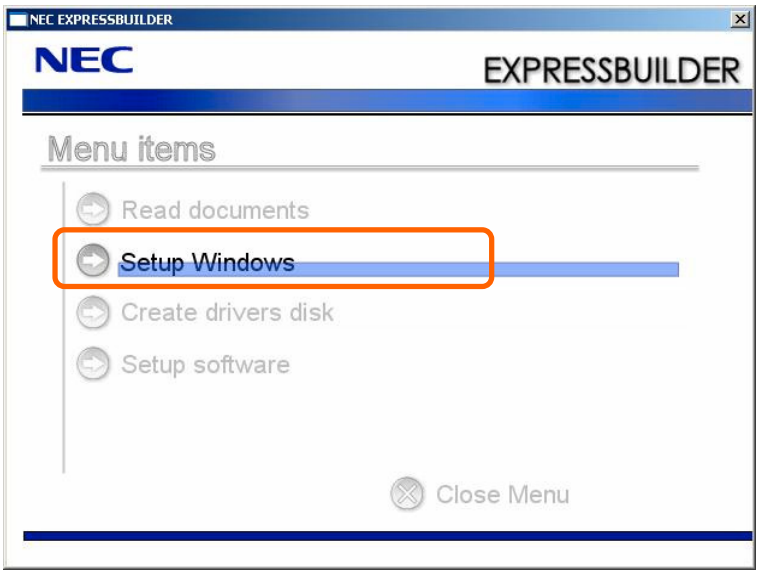
This section describes about specifying setup information that is necessary for OS installation and creating [Parameter file].

Follow the procedure below.

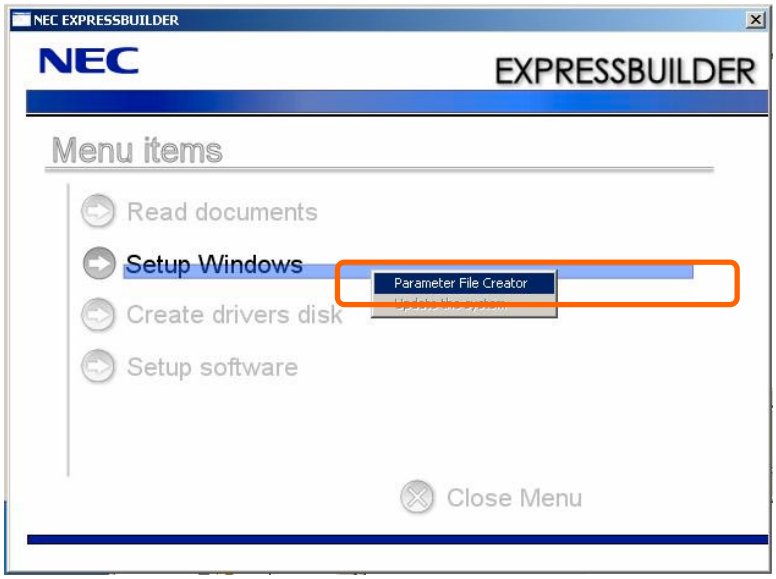
> **IMPORTANT:** Do not remove NEC EXPRESSBUILDER DVD from drive during a parameter file creation.

1. Start the OS.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive.

   The menu will appear.
3. Right-click on the screen or left-click [Setup Windows]. The menu will appear.



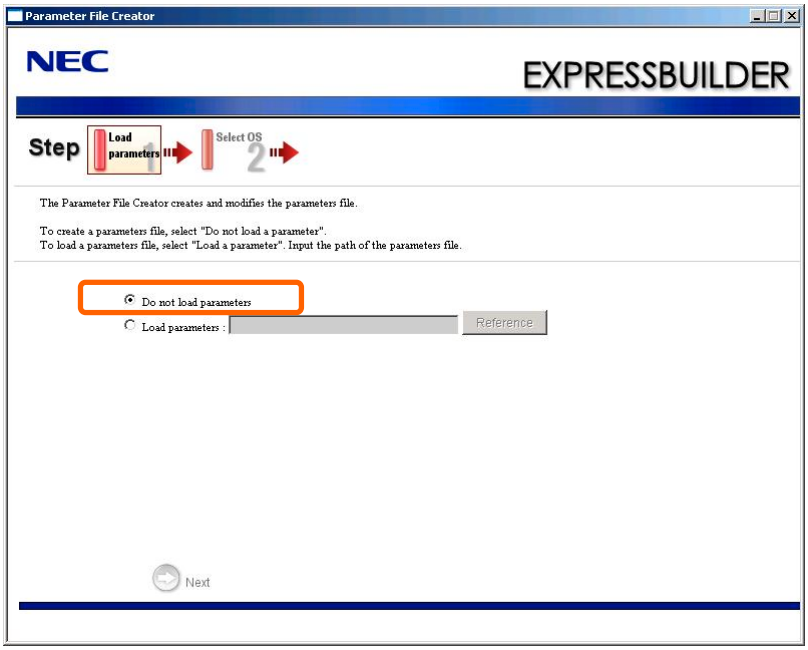
4. Click [Parameter File Creator].



Parameter File Creator will appear.

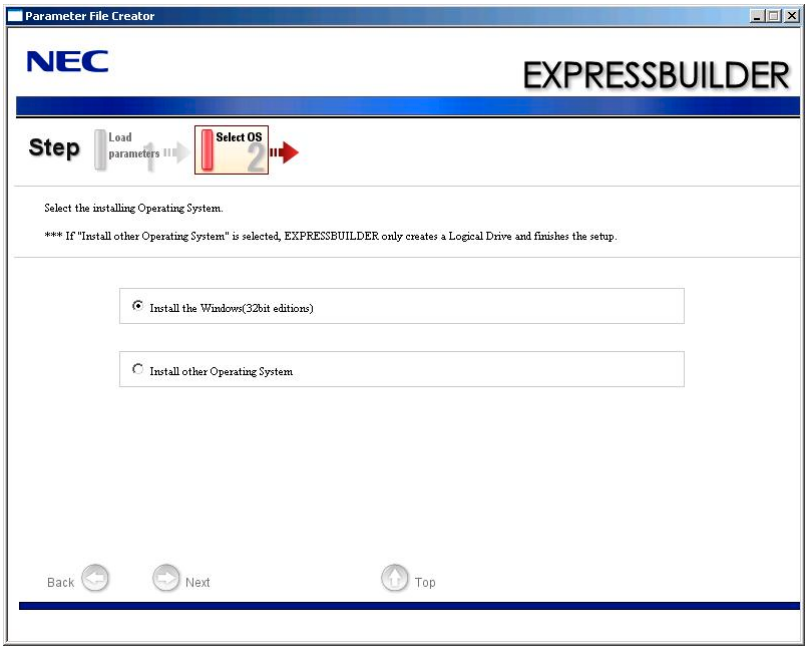
5. [Load Parameters] step is displayed.

Select [Do not load parameters] from the menu, click [Next].


Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
The Parameter File Creator creates and modifies the parameters file.
To create a parameters file, select "Do not load a parameter".
To load a parameters file, select "Load a parameter". Input the path of the parameters file.
Do not load parameters
Load parameters :
Reference
Next

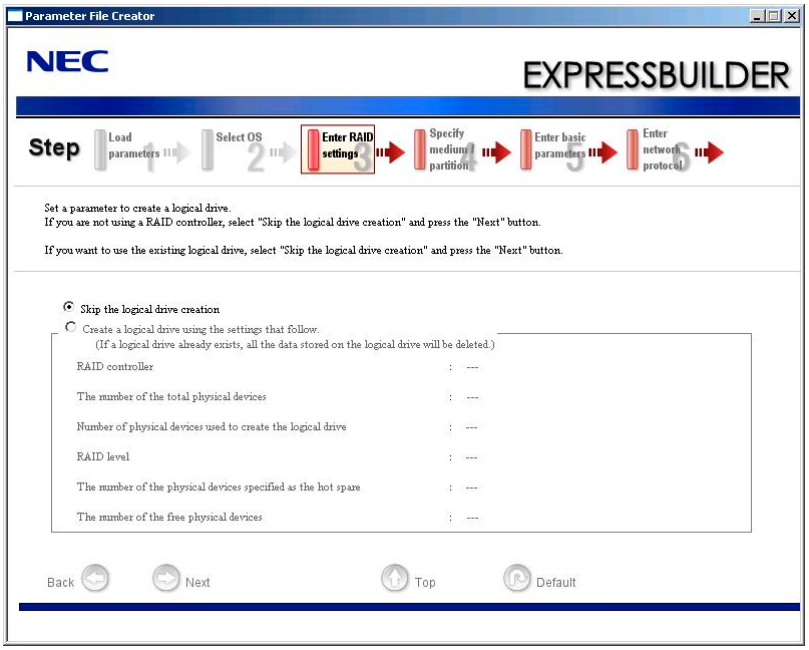
6. Select the installing Operating System.

Select [Install the Windows (32bit editions)] from the menu, click [Next].



7. Enter the setting of a logical drive.

[Enter RAID setting] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

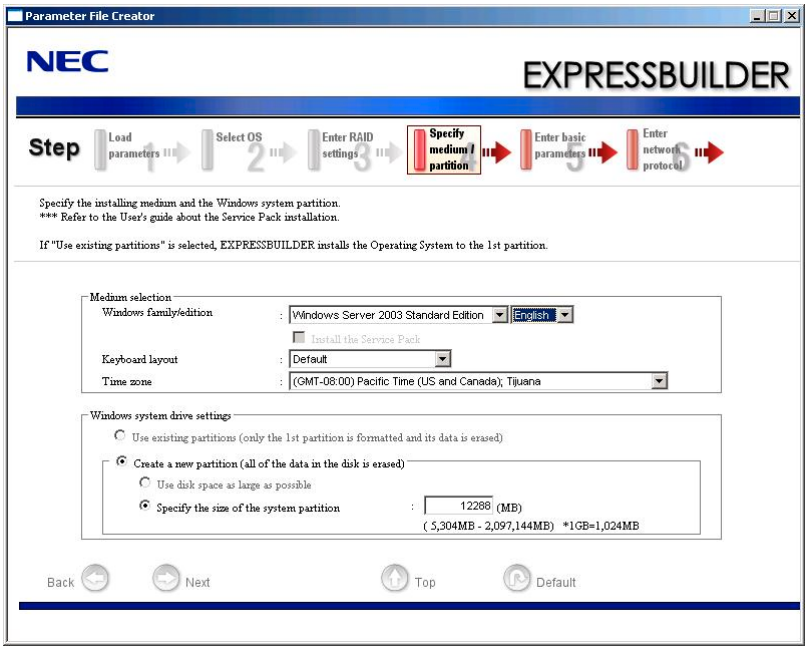

Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
Enter RAID settings
Specify medium/ partition
Enter basic parameters
Enter network protocol
Set a parameter to create a logical drive.
If you are not using a RAID controller, select "Skip the logical drive creation" and press the "Next" button.
If you want to use the existing logical drive, select "Skip the logical drive creation" and press the "Next" button.
Skip the logical drive creation
Create a logical drive using the settings that follow.
(If a logical drive already exists, all the data stored on the logical drive will be deleted.)
RAID controller : ---
The number of the total physical devices : ---
Number of physical devices used to create the logical drive : ---
RAID level : ---
The number of the physical devices specified as the hot spare : ---
The number of the free physical devices : ---
Back
Next
Top
Default

IMPORTANT: At "The number of the total physical devices", Parameter File Creator displays upper limit that the RAID controller can support.
The total of "The number of physical devices used to create the logical drive" and "The number of the physical devices specified as the hot spare" must not exceed "The number of the total physical devices" which connected to the target system.

NOTE: You can use only the physical devices that have same model number to configure logical drive.

8. Specify the installing medium and the Windows system partition.

[Specify medium / Partition] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].


Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Enter network protocol
Specify the installing medium and the Windows system partition.
*** Refer to the User's guide about the Service Pack installation.
If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition.
Medium selection
Windows family/edition
Windows Server 2003 Standard Edition
English
Install the Service Pack
Keyboard layout
Default
Time zone
(GMT-08:00) Pacific Time (US and Canada); Tijuana
Windows system drive settings
Use existing partitions (only the 1st partition is formatted and its data is erased)
Create a new partition (all of the data in the disk is erased)
Use disk space as large as possible
Specify the size of the system partition
12288 (MB)
(5,304MB - 2,097,144MB) *1GB=1,024MB
Back
Next
Top
Default

IMPORTANT:

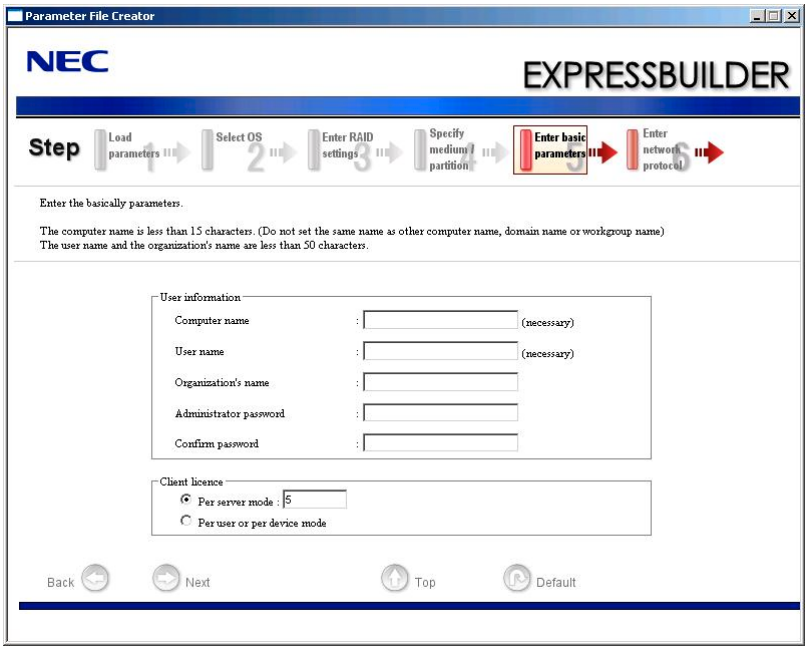
- About partition size
  - Specify the partition size larger than required minimum size for OS installation.
  - Do not specify larger partition size than the capacity of connected hard disk drive.
  - You can not specify the partition size larger than 2,097,152MB (2TB) at RAID system.
- If you select "Create a new partition" at "Windows system drive settings", the contents of the hard disk will be all deleted.
- If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition (1st partition is deleted). The data in the other partition is kept if the system has two or more partitions. (See the figure below.)

First Partition Deleted	Second Partition Retained	Third Partition Retained

- You can not re-install the system with the existing partition that is upgraded to Dynamic Disk remained. Do not select "Use existing partitions" at "Windows system drive settings".

9. Enter the user information and client license mode.

[Enter basic parameters] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

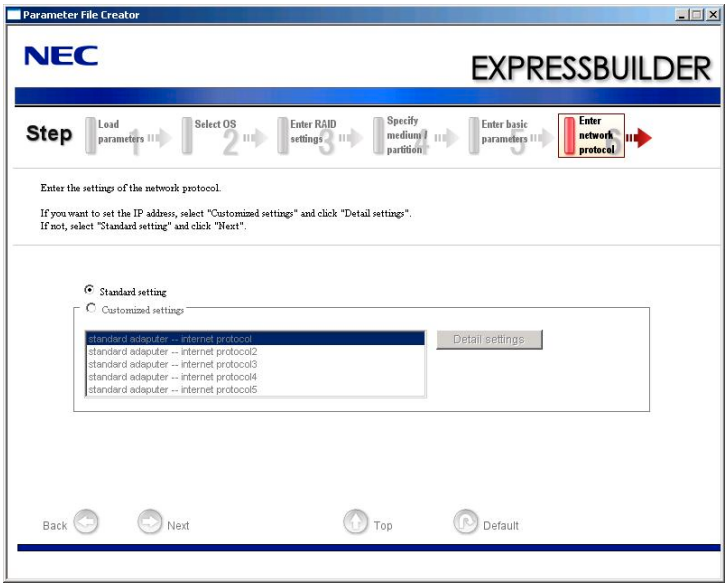


IMPORTANT: Computer name and User name are required parameters.

NOTE: Even if you do not input value into "Administrator password", "Confirm password", "●●●●●●" is displayed.

10. Enter the setting of the network protocol.

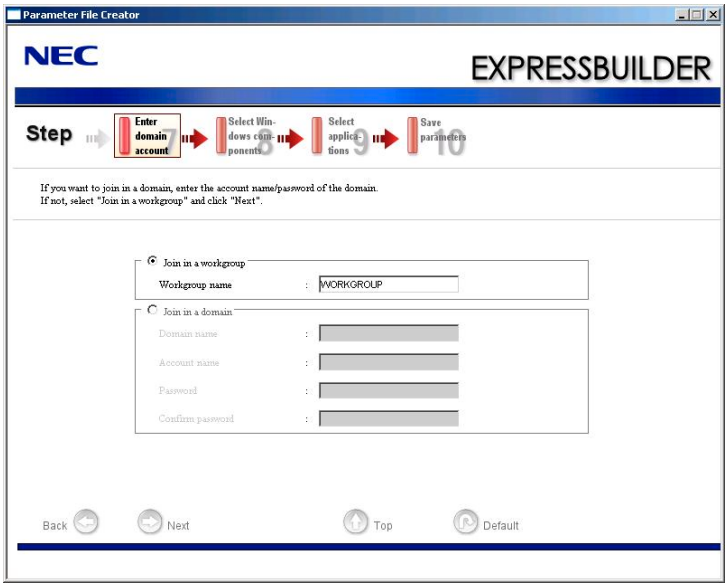
[Enter network protocol] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



NOTE: The order of entry in custom setting may differ from the numbering of LAN port.

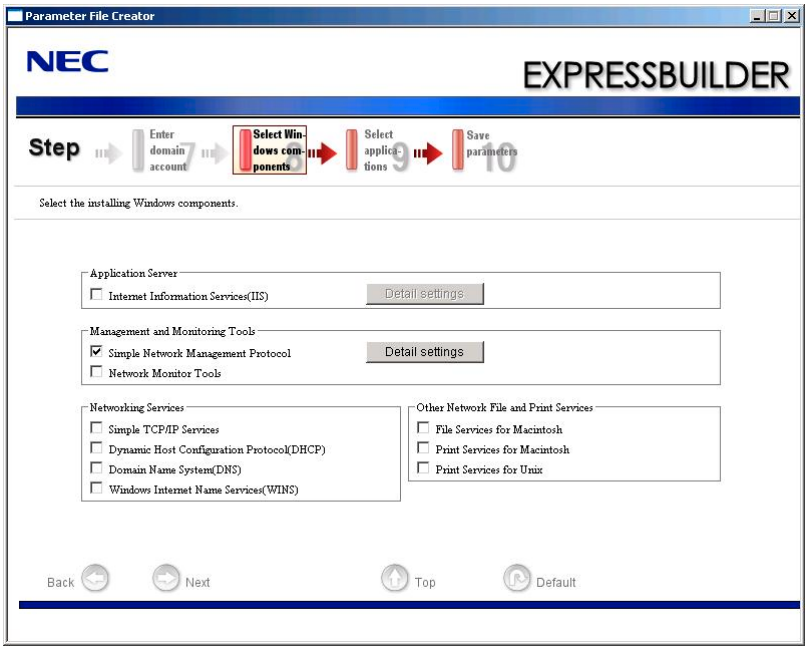
11. Enter the domain or workgroup name to be used.

[Enter domain account] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



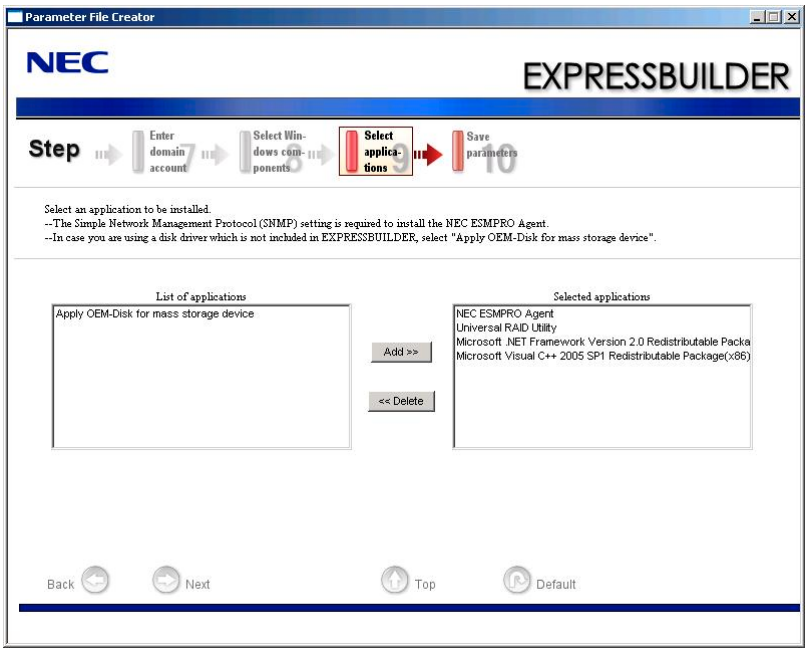
12. Select the installing components.

[Select Windows components] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next]



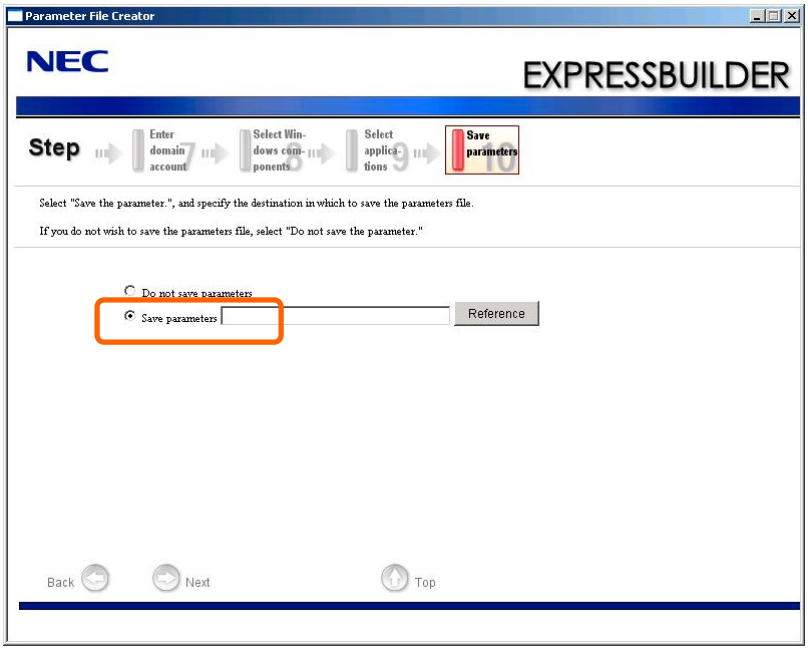
13. Select the installing applications.

[Select applications] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].


Parameter File Creator
NEC
EXPRESSBUILDER
Step
Enter domain account
Select Windows components
Select applications
Save parameters
Select an application to be installed.
--The Simple Network Management Protocol (SNMP) setting is required to install the NEC ESMPRO Agent.
--In case you are using a disk driver which is not included in EXPRESSBUILDER, select "Apply OEM-Disk for mass storage device".
List of applications
Apply OEM-Disk for mass storage device
Add >>
<< Delete
Selected applications
NEC ESMPRO Agent
Universal RAID Utility
Microsoft .NET Framework Version 2.0 Redistributable Packa
Microsoft Visual C++ 2005 SP1 Redistributable Package(x86)
Back
Next
Top
Default

14. Save the parameters.

[Save parameters] steps are displayed.

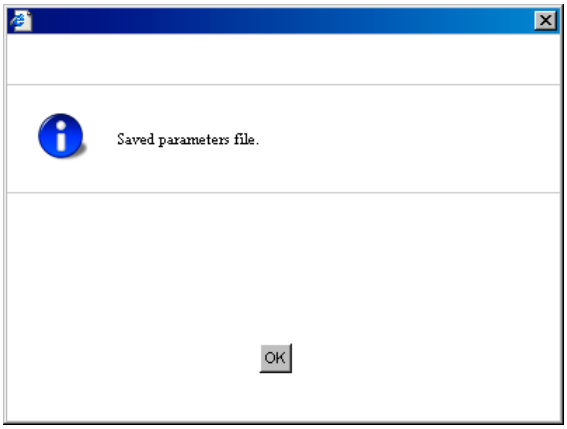


If you want to save the parameters, set the free formatted floppy disk.

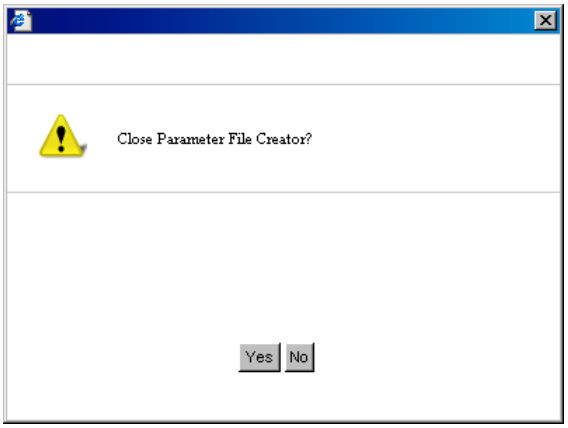
Select [Save parameters], enter the file path of the parameters files into the text box and click [Next].

If not, select [Do not save parameters].

15. Saved to a floppy disk.



Now [the floppy disk containing the parameters file] has been created.



Click [Yes] to exit Parameter File Creator.

NOTES:

- If you modify existing information file (parameter file), click "Load Parameters" at [Load Parameters] screen. Refer to help to modify information file.
- If you cancel operation on the way, click at the upper-right corner of the screen.

NEC ESMPRO

The NEC ESMPRO lets a system administrator manage remote servers across a network. NEC ESMPRO monitors server hardware and software configurations, failures, and performance. With log data collected by NEC ESMPRO, a system administrator can track long-term and short-term performance, monitor server usage, create graphs to record trends, and check server failure rates. The administrator can use the information collected to create more efficient data routing procedures and optimize server usage.

> **IMPORTANT:** For installation procedure and detailed explanations on NEC ESMPRO, refer to the online document in the NEC EXPRESSBUILDER DVD.

The NEC ESMPRO offers many functions and features for managing remote servers across a network. These features help the system administrator perform daily system operation, system extension, and transfer tasks. Some features of NEC ESMPRO Manager include:

- Hardware and software server configuration
  - Hardware resources mounted in servers, such as the CPU, memory, disks, and LAN boards.
  - Software resources, such as operating system information and drivers running on each server.
- Server failures
  - On-screen real-time displays provide the system administrator with the failure type, location, cause, and suggested corrective action.
  - Failure data includes hardware failure information such as system board temperature, memory failure, crashes, and software failure information.
- Performance
  - NEC ESMPRO monitors server performance and displays server usage on the screen and displays information, such as the rate of CPU load, memory usage, disk usage, and LAN traffic. Usage threshold values can help the system administrator monitor and prevent server overloads.

Supplement

Note the following in addition to the NOTE that has been described in the online document for NEC ESMPRO.

- About the Monitoring of Chassis Sensors

  The fan and the power supply installed in Blade Enclosure (SIGMABLADE) are monitored by the EM card.
  The information that the EM card monitors can be confirmed by the EnclosureViewer of NEC ESMPRO Manager.
  In [ESMPRO] - [Enclosure] - [Power Supply] tree in the DataViewer of NEC ESMPRO Manager, the status of the power circuit of CPU blade is displayed.

Universal RAID Utility

Universal RAID Utility is an application to manage or monitor the following RAID Controllers.

- Onboard RAID Controller (MegaRAID ROMB)

Before attempting to operate Universal RAID Utility, read the "Universal RAID Utility User's Guide" included in NEC EXPRESSBUILDER DVD. The manual explains the installation procedure and notes on operating Universal RAID Utility.

Setup with Express Setup

You can install Universal RAID Utility with Express Setup contained in NEC EXPRESSBUILDER DVD. When you start the Express Setup, a dialog to specify an application appears. Select [Universal RAID Utility] on the dialog.

Manual Setup

You can start the setup program of Universal RAID Utility from [Autorun Menu].

Click [Setup Software] → [Universal RAID Utility] in [Autorun Menu].

You need to install the following software.

- Microsoft .NET Framework 2.0
- The Runtime component of the Microsoft Visual C++ 2005 SP1

You can install these software from [Autorun Menu] too.

Click [Setup Windows] → [Install the .NET Framework Ver 2.0 Redistributable Package(x86)] (If CPU architecture is x64, [Install the .NET Framework Ver2.0 Redistributable Package(x64)]) in [Autorun Menu] for the setup of Microsoft.NET Framework 2.0.

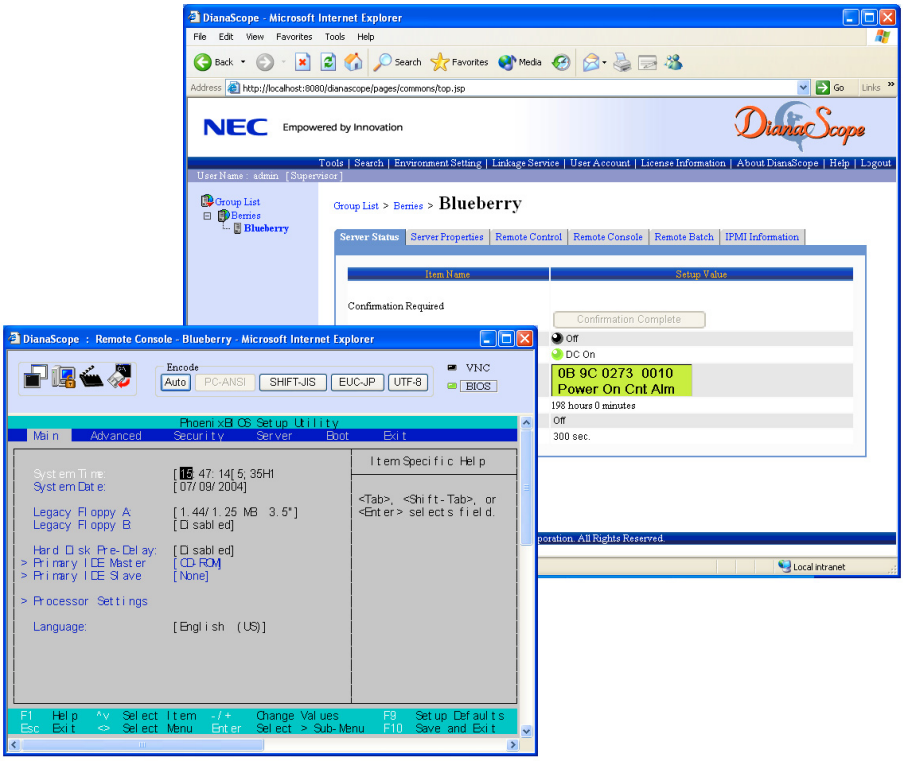
Click [Setup Windows] → [Install the Microsoft Visual C++ 2005 SP1 Redistributable Package(x86)] (Use the x86 package whatever the CPU architecture may be.) for the setup of the Runtime component of the Microsoft Visual C++ 2005 SP1.

Using Universal RAID Utility via Network

Universal RAID Utility does not support the function to manage the computer containing RAID Controller via network. If you want to manage it via network, use the function of remote console (ex. Remote Desktop of Windows).

NEC DianaScope

The NEC DianaScope is software for the remote management of this server. See the online documents for details on the functions and installation of the NEC DianaScope.



NOTE: To manage this product using NEC DianaScope, a server license is needed.
The following server license is attached to the product.

- UL1198-001E DianaScope Additional Server License(1)

Chapter 7

Maintenance

This chapter describes the daily maintenance of the CPU blade and precautions when relocating or storing the CPU blade.

MAKING BACKUP COPIES

NEC recommends you make backup copies of your valuable data stored in hard disk drives of the CPU blade on a regular basis. For backup storage devices suitable for the CPU blade and backup tools, consult with your service representative.

When you have changed the hardware configuration or BIOS configuration, select "System Information Management" and then "Save" of the Off-line Maintenance Utility to make a backup copy of the system information.

Also make a backup copy of the RAID configuration data if your system is in the RAID configuration. When your hard disk drives have been auto-rebuilt due to a failure, it is recommended to make a backup copy of the configuration data. To make a backup copy of the configuration data, refer to the manual that comes with the RAID controller.

SYSTEM DIAGNOSTICS

The System Diagnostics runs several tests on the CPU blade.

Select [Tool menu] - [Test and diagnostics] in the NEC EXPRESSBUILDER to diagnose the system.

Test Items

The following items are tested in system diagnostics.

- Memory
- CPU cache memory
- Hard disk drive used as a system

IMPORTANT: When executing the System Diagnostics, make sure to disconnect the CPU blade from the network. Executing the System Diagnostics with the CPU blade being connected to the network, the network may be influenced.

NOTE: On checking the hard disk drive, no data is written into the disk.

Startup and Exit of System Diagnostics

There are two ways to diagnose the CPU blade: to use the local console (keyboard) connected to the Blade Enclosure, and to use the management PC via serial port (remote console).

> **IMPORTANT:** Two methods of LAN and the serial port are mentioned in "MAINTENANCE TOOLS" of Chapter 8 "Troubleshooting" in the way of communicating in remote console.
> Use the serial port to execute System Diagnostics with remote console. The LAN connection is not for System Diagnostics.

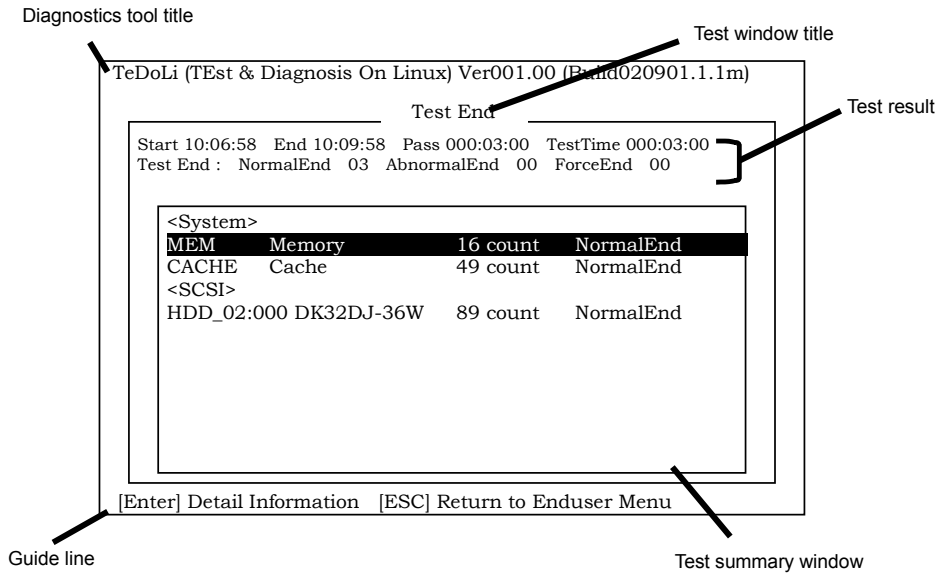
Procedures to start the diagnostics program are as follows:

1. Shutdown the OS, and turn off the CPU blade.
2. Disconnect all the LAN cables from the Blade Enclosure. If the switch module is connected with the Blade Enclosure, remove all the LAN cables from the switch module.
3. Power on the CPU blade.
4. Use the NEC EXPRESSBUILDER DVD to start the system.
5. Select [Tool menu (Normal mode)] when local console of the CPU blade is used for, or select [Tool menu (Redirection mode)] when remote console is used for.

> **NOTE:** If the system displays the [Language selection] menu, select [English].

6. Select [Test and diagnostics].

Select [End-User Mode] and the system diagnostics starts. The diagnostics will be completed in approximately three minutes. When the diagnostics is completed, the screen of the display changes as shown below:


Diagnostics tool title
Test window title
TeDoLi (TEst & Diagnosis On Linux) Ver001.00 (Build020901.1.1m)
Test End
Test result
Start 10:06:58 End 10:09:58 Pass 000:03:00 TestTime 000:03:00
Test End : NormalEnd 03 AbnormalEnd 00 ForceEnd 00
<System>
MEM Memory 16 count NormalEnd
CACHE Cache 49 count NormalEnd
<SCSI>
HDD_02:000 DK32DJ-36W 89 count NormalEnd
[Enter] Detail Information [ESC] Return to Enduser Menu
Guide line
Test summary window

– Diagnostics tool title

  Shows the name and version of the diagnostic tool.

– Test window title

  Shows the progress of the diagnostics. "Test End" is displayed when the diagnostics completes.

– Test result

  Shows the start, end, and elapsed time and completion status of the diagnostics.

– Guide line

  Shows the details of the keys to operate window.

– Test summary window

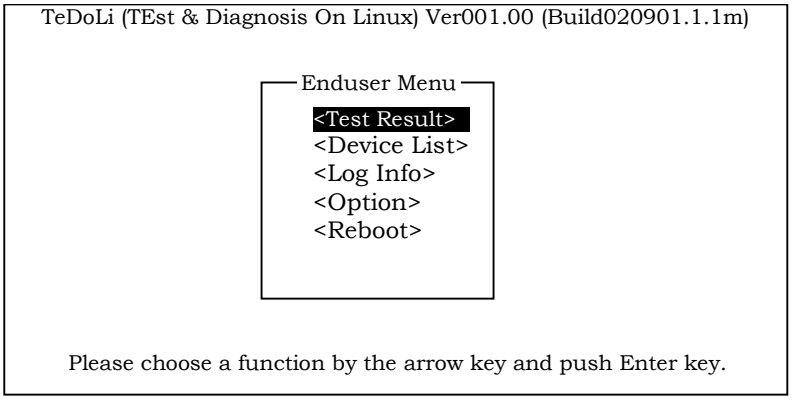
  Shows the results of each test that executed the diagnostics. Move the cursor and press the **Enter** key on the cursor line to display the details of the test.

When an error is detected by the system diagnostics, the relevant test result in the test Summary window is highlighted in red, and "Abnormal End" is displayed in the result on the right side.

Move the cursor to the test that detected the error, and press the **Enter** key. Record the error message that has been output to the Detail Information screen and contact your service representative.

7. Follow the guide line shown at the bottom of the screen, and press the **Esc** key.

   The [Enduser Menu] below is displayed.



<Test Result> Shows the diagnostics completion screen of the above diagnostics.

<Device List> Shows a list of connected devices.

<Log Info> Shows the log information of the diagnostics. It can be saved on a floppy disk.
To save it on a floppy disk, insert a formatted floppy disk to the floppy disk drive, and select <Save(F)>.

<Option> Optional features can be used from this menu.

<Reboot> Reboots the system.

8. Select <Reboot> in the [Enduser Menu] above.

   The CPU blade restarts and the system is started from the NEC EXPRESSBUILDER.

9. Exit the NEC EXPRESSBUILDER, and remove the DVD from the optical disk drive.

10. Power off the CPU blade.

11. Reconnect all the LAN cables that have been disconnected in Step 2.

This completes the system diagnostics.

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Chapter 8

Troubleshooting

If your CPU blade does not operate as expected, read this chapter before assuming a failure.

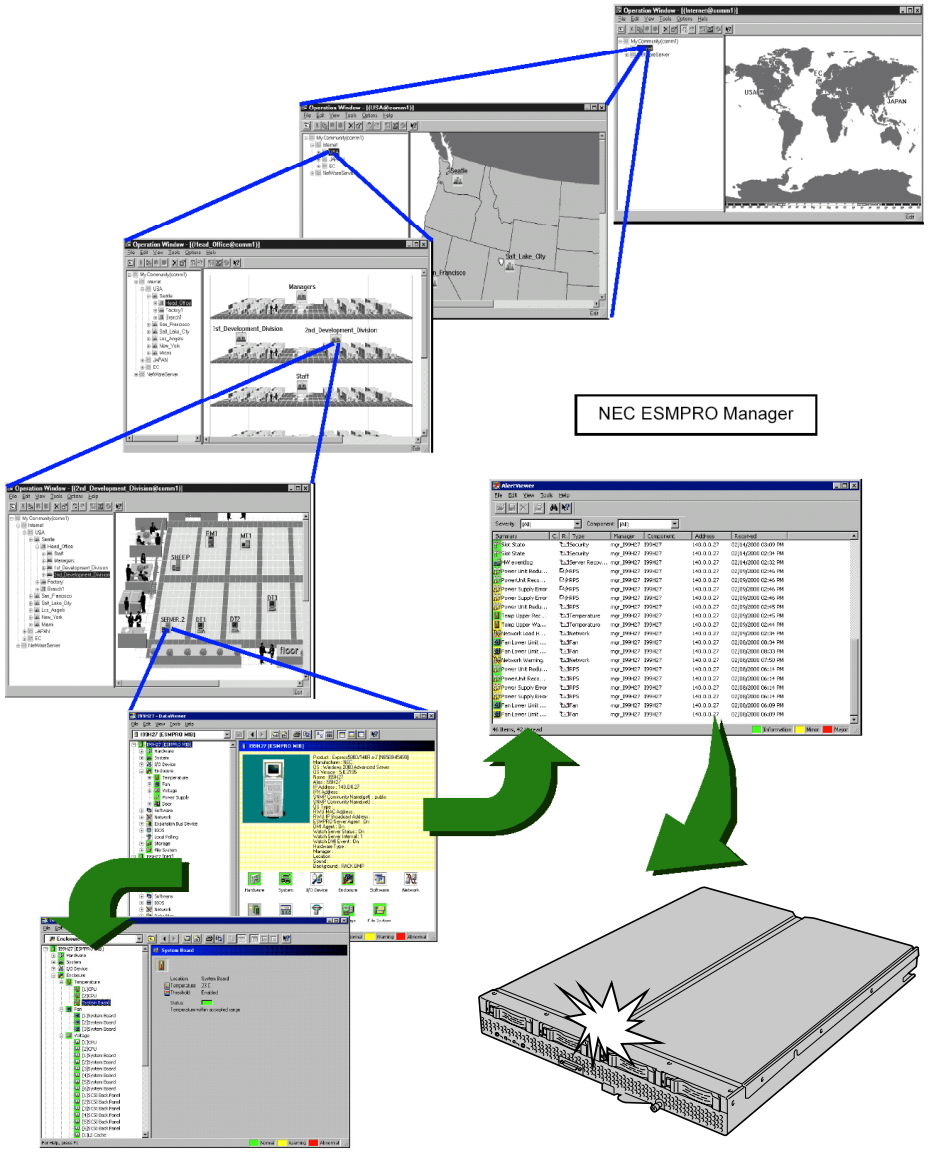
> **NOTE:** For provision against an unexpected failure, it is recommended to install the Off-line maintenance utility, NEC ESMPRO, to your computer.

SYSTEM VIEWERS

Monitor the occurrence of fault by NEC ESMPRO during the system operation.

Especially take note on whether any alert is reported to NEC ESMPRO Manager. Check whether any alert is reported on Operation Window, DataViewer, or AlertViewer of NEC ESMPRO Manager.

[Example]



ERROR MESSAGES

If an error occurs in the CPU blade, an error message appears on the display unit connected to the CPU blade.

POST Error Messages

Powering on the CPU blade automatically starts the self-diagnostic program, POST (Power On Self-Test). When the POST detects any error, it displays an error message and its measure on the display unit.

Follow the table below to troubleshoot such errors.

NOTES:

- The POST error messages listed below are for CPU blade itself.
- The POST error message contains POST error code. For example, "0B60" represents the error code in the message [0B60: DIMM group #1 has been disabled].

IMPORTANT: Take a note on the messages displayed before consulting with your service representative. Alarm messages are useful information for maintenance.

On-screen error message	Recommended action
0200 Failure Fixed Disk	Contact your service representative.
0230 System RAM Failed 0231 Shadow RAM Failed 0232 Extend RAM Failed	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of DIMMs. 4. Replace the DIMM. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0250	System battery is dead - Replace and run SETUP	1. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 3. Check installation status of the Li-Ion battery on CPU unit. 4. Replace the Li-Ion battery on CPU unit. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative. Note: Restart the CPU blade, run BIOS SETUP, and provide settings for date, time, and others.
0251	System CMOS checksum bad - Default configuration used	The default configuration of BIOS SETUP is used. 1. Run the BIOS SETUP utility to correct the setting. 2. If the same error persists, contact your service representative.
0252	Password checksum bad - Passwords cleared	The password has been cleared. 1. Run the BIOS SETUP utility to correct the setting. 2. If the same error persists, contact your service representative.
0260	System timer error	1. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Replace the CPU blade. 3. If the same error persists, contact your service representative.
0270	Real timer error	
0271	Check date and time setting	1. Run the BIOS SETUP utility to set the current date and time. 2. If the same error persists, contact your service representative.
0615	COM B configuration changed	1. Run the BIOS SETUP utility to correct the setting. 2. If the same error persists, contact your service representative.
0616	COM B config. error - device disabled	
0B28	Unsupported Processor detected on Processor 1	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Replace the CPU that was additionally installed or replaced. 3. Replace the failed CPU. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B29	Unsupported Processor detected on Processor 2	
0B2A	Unsupported Processor detected on Processor 3	
0B2B	Unsupported Processor detected on Processor 4	

On-screen error message		Recommended action
0B50	Processor #1 with error taken offline	1. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Replace the failed CPU. 3. Replace the CPU blade. 4. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the CPU has been replaced, run BIOS SETUP and restarting the CPU blade, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
0B51	Processor #2 with error taken offline	
0B52	Processor #3 with error taken offline	
0B53	Processor #4 with error taken offline	
0B5F	Forced to use Processor with error	1. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Check installation status of DIMMs. 3. Check connection status of signal cable between the CPU unit and the SAS unit. 4. Check installation status of DIMMs on SAS unit. 5. Check installation status of mezzanine card. 6. Replace the CPU blade. 7. Replace the mezzanine card. 8. Replace the DIMMs. 9. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the CPU has been replaced, run BIOS SETUP and restarting the CPU blade, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
0B60	DIMM group #1 has been disabled	1. Run BIOS SETUP, select [Advanced] - [Memory Configuration] - [Memory Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Check installation status of failed DIMMs. 3. Replace the failed DIMMs. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the DIMMs have been replaced, run BIOS SETUP and restarting the CPU blade, select [Advanced] - [Memory Configuration] - [Memory Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
0B61	DIMM group #2 has been disabled	
0B62	DIMM group #3 has been disabled	
0B63	DIMM group #4 has been disabled	
0B64	DIMM group #5 has been disabled	
0B65	DIMM group #6 has been disabled	
0B66	DIMM group #7 has been disabled	
0B67	DIMM group #8 has been disabled	

On-screen error message		Recommended action
0B70	The error occurred during temperature sensor reading	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B71	System Temperature out of the range	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition. 6. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 7. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 8. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 9. Replace the CPU blade. 10. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0B74	The error occurred during voltage sensor reading	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Check connection status of signal cable between the CPU unit and the SAS unit. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.
0B75	System Voltage out of the range	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Check connection status of signal cable between the CPU unit and the SAS unit. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.
0B80	BMC Memory Test Failed.	1. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 2. Replace the CPU blade. 3. If the same error persists, contact your service representative.
0B81	BMC Firmware Code Area CRC check failed	
0B82	BMC core hardware failure	

On-screen error message		Recommended action
0B83	BMC IBF or OBF check failed	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B8A	BMC SEL area full	1. Run BIOS SETUP, select [Server] - [Event Log Configuration] - [Clear All Error Logs] to clear the IPMI system event logs. 2. If the same error persists, contact your service representative. Note: You can make a backup copy of IPMI system event logs through the Off-line Maintenance Utility before clearing the IPMI system event logs on BIOS SETUP.
0B8B	BMC progress check timeout	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B8C	BMC command access failed	
0B8D	Could not redirect the console - BMC Busy -	
0B8E	Could not redirect the console - BMC Error -	
0B8F	Could not redirect the console - BMC Parameter Error -	

On-screen error message		Recommended action
0B90	BMC Platform Information Area Corrupted	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B91	BMC update firmware corrupted	
0B92	Internal Use Area of BMC FRU corrupted	
0B93	BMC SDR Repository empty	
0B94	IPMB signal lines do not respond	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0B95	BMC FRU device failure	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0B96	BMC SDR Repository failure	
0B97	BMC SEL device failure	
0B98	BMC RAM test error	
0B99	BMC Fatal hardware error	
0BB0	SMBIOS - SROM data read error	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0BB1	SMBIOS - SROM data checksum bad	

On-screen error message	Recommended action
0BC0 POST detected startup failure of 1st Processor 0BC1 POST detected startup failure of 2nd Processor 0BC2 POST detected startup failure of 3rh Processor 0BC3 POST detected startup failure of 4th Processor	1. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Replace the failed CPU. 3. Replace the CPU blade. 4. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the CPU has been replaced, run BIOS SETUP and restarting the CPU blade, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
0BD1 1st SMBus device Error detected	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.

On-screen error message		Recommended action
0BD4	2nd SMBus device Error detected	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
0BD7	3rd SMBus device Error detected	
0BDA	4th SMBus device Error detected	
0BDD	5th SMBus device Error detected	
0BE0	6th SMBus device Error detected	
8120	Unsupported DIMM detected in DIMM group#1	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Replace the DIMM Group that was additionally installed or replaced. 3. Replace the failed DIMM Group. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
8121	Unsupported DIMM detected in DIMM group#2	
8122	Unsupported DIMM detected in DIMM group#3	
8123	Unsupported DIMM detected in DIMM group#4	
8124	Unsupported DIMM detected in DIMM group#5	
8125	Unsupported DIMM detected in DIMM group#6	
8126	Unsupported DIMM detected in DIMM group#7	
8127	Unsupported DIMM detected in DIMM group#8	

On-screen error message		Recommended action
8130	Mismatch DIMM Type detected in DIMM group#1	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Check installation status of DIMM Group that was additionally installed or replaced. 3. Replace the DIMM Group that was additionally installed or replaced. 4. Replace the failed DIMM Group. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.
8131	Mismatch DIMM Type detected in DIMM group#2	
8132	Mismatch DIMM Type detected in DIMM group#3	
8133	Mismatch DIMM Type detected in DIMM group#4	
8134	Mismatch DIMM Type detected in DIMM group#5	
8135	Mismatch DIMM Type detected in DIMM group#6	
8136	Mismatch DIMM Type detected in DIMM group#7	
8137	Mismatch DIMM Type detected in DIMM group#8	
8140	DIMM group #1 with error is enabled	1. Run BIOS SETUP, select [Advanced] - [Memory Configuration] - [Memory Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Check installation status of failed DIMM Group. 3. Replace the failed DIMM Group. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the DIMMs have been replaced, run BIOS SETUP and restarting the CPU blade, select [Advanced] - [Memory Configuration] - [Memory Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
8141	DIMM group #2 with error is enabled	
8142	DIMM group #3 with error is enabled	
8143	DIMM group #4 with error is enabled	
8144	DIMM group #5 with error is enabled	
8145	DIMM group #6 with error is enabled	
8146	DIMM group #7 with error is enabled	
8147	DIMM group #8 with error is enabled	
8150	NVRAM Cleared By Jumper	Contact your service representative.
8151	Password Cleared By Jumper	Contact your service representative.
8160	Mismatch Processor speed detected on Processor 1	1. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Replace the CPU that was additionally installed or replaced. 3. Replace the failed CPU. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the CPU has been replaced, run BIOS SETUP and restarting the CPU blade, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
8161	Mismatch Processor speed detected on Processor 2	
8162	Mismatch Processor speed detected on Processor 3	
8163	Mismatch Processor speed detected on Processor 4	

On-screen error message		Recommended action
8170	Processor 1 not operating at intended frequency	1. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes]. 2. Replace the CPU that was additionally installed or replaced. 3. Replace the failed CPU. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative. Note: The detailed error information can be obtained by viewing the IPMI system event log. If the CPU has been replaced, run BIOS SETUP and restarting the CPU blade, select [Main] - [Processor Settings] - [Processor Retest] - [Yes], then select [Exit] - [Exit Saving Changes].
8171	Processor 2 not operating at intended frequency	
8172	Processor 3 not operating at intended frequency	
8173	Processor 4 not operating at intended frequency	
817F	All Processor not operating at intended frequency	1. Take one of the following measures to reboot (reset) the CPU blade. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Replace the CPU blade. 3. If the same error persists, contact your service representative.
8180	Processor #1 Error	You may continue to use or run the system, however, replace the failed component with new one. 1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of failed CPU. 4. Check instatllation status of the heat sink on the failed CPU. 5. Replace the failed CPU. 6. Replace the CPU blade. 7. If the same error persists, contact your service representative.
8181	Processor #2 Error	
8182	Processor #3 Error	
8183	Processor #4 Error	

On-screen error message		Recommended action
81A0	Cache Cautionary status detected on Processor 1	This is not a fatal error and the processor need not be replaced immediately. You may continue to use or run the system 1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of failed CPU. 4. Check instatllation status of the heat sink on the failed CPU. 5. Replace the failed CPU. 6. Replace the CPU blade. 7. If the same error persists, contact your service representative.
81A1	Cache Cautionary status detected on Processor 2	
81A2	Cache Cautionary status detected on Processor 3	
81A3	Cache Cautionary status detected on Processor 4	
8200	Online Spare memory was not ready	1. Run BIOS SETUP and check settings for [Advanced] - [Memory Configuration]. 2. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of DIMMs. 4. Replace the DIMM. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.
8201	Mirroring Memory was not ready	1. Run BIOS SETUP and check settings for [Advanced] - [Memory Configuration]. 2. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of DIMMs. 4. Replace the DIMM. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.

On-screen error message	Recommended action
8400 Onboard PCIE#1 Link Failure 8401 Onboard PCIE#2 Link Failure 8402 Onboard PCIE#3 Link Failure 8403 Onboard PCIE#4 Link Failure 8404 Onboard PCIE#5 Link Failure	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative. Note: If the message [8403: Onboard PCIE#4 Link Failure] is displayed, check also: * Connection status of signal cable between the CPU unit and the SAS unit * Installation status of DIMMs on SAS unit
8410 Mezzanine Slot#1 PCIE Link Failure 8411 Mezzanine Slot#2 PCIE Link Failure 8412 Mezzanine Slot#3 PCIE Link Failure 8413 Mezzanine Slot#4 PCIE Link Failure	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Check installation status of failed mezzanine card. 5. Replace the failed mezzanine card. 6. Replace the CPU blade. 7. If the same error persists, contact your service representative.

On-screen error message		Recommended action
8420	Onboard PCIE#1 Link Width Error	This is not a fatal error. The board needs not to be replaced immediately, but its performance may be decreased. You may continue to use or run the system. 1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Replace the CPU blade. 3. If the same error persists, contact your service representative. Note: If the message [8423: Onboard PCIE#4 Link Width Error] is displayed, check the followings: * Connection of signal cable between the CPU unit and the SAS unit * Installation status of DIMMs on SAS unit
8421	Onboard PCIE#2 Link Width Error	
8422	Onboard PCIE#3 Link Width Error	
8423	Onboard PCIE#4 Link Width Error	
8424	Onboard PCIE#5 Link Width Error	
8430	Mezzanine Slot 1 PCIE Link Link Width Error	This is not a fatal error. The board needs not to be replaced immediately, but its performance may be decreased. You may continue to use or run the system 1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Check installation status of failed mezzanine card. 3. Replace the failed mezzanine card. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
8431	Mezzanine Slot 2 PCIE Link Link Width Error	
8432	Mezzanine Slot 3 PCIE Link Link Width Error	
8433	Mezzanine Slot 4 PCIE Link Link Width Error	

On-screen error message	Recommended action
8450 Can't Read FRU on Mezzanine Slot 1 8451 Can't Read FRU on Mezzanine Slot 2 8452 Can't Read FRU on Mezzanine Slot 3 8453 Can't Read FRU on Mezzanine Slot 4	1. Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade. 4. Check installation status of failed mezzanine card. 5. Replace the failed mezzanine card. 6. Replace the CPU blade. 7. If the same error persists, contact your service representative.
Resource conflict	1. Take one of the following measures to reboot (reset) the CPU blade. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Check installation status of mezzanine card. 3. Replace the mezzanine card. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.
Expansion Rom not initialize	1. Run BIOS SETUP. Select [Advanced] - [PCI Configuration] or [Advanced] - [PCI Configuration] - [Onboard NIC] and change [Option ROM Scan] to [Disabled] for the device of which use frequency of option ROM is low. Then, select [Exit] - [Exit SavingChanges]. 2. Take one of the following measures to reboot (reset) the CPU blade. * Press Ctrl + Alt + Del. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 3. Check installation status of mezzanine card. 4. Replace the mezzanine card. 5. Replace the CPU blade. 6. If the same error persists, contact your service representative.

On-screen error message	Recommended action
Invalid System Configuration Data System Configuration Data Read Error System Configuration Data Write Error	1. Take one of the following measures to reboot (reset) the CPU blade. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. 2. Replace the CPU blade. 3. If the same error persists, contact your service representative.
WARNING: IRQ not configured	1. Take one of the following measures to reboot (reset) the CPU blade. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager. 2. Check installation status of mezzanine card. 3. Replace the mezzanine card. 4. Replace the CPU blade. 5. If the same error persists, contact your service representative.

Other POST Error

The following POST error is not displayed on screen, but recorded in System Event Log.

POST error code	Meaning	Recommended action
02F0	An error is detected while the processor is being initialized.	Check other POST error message displayed on screen, and take appropriate action.

Error Messages on Virtual LCD

The remote management feature of EXPRESSSCOPE Engine and NEC DianaScope displays the status of the managed CPU blade on virtual LCD (16 digits x 2 lines).

The virtual LCD displays the followings:

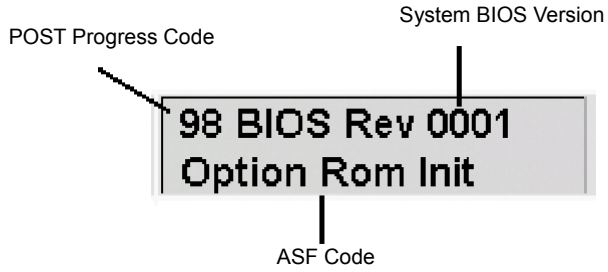
- POST progress
- Error occurred during operation or DC OFF (AC power is being on)

When POST detects an error, the POST error code is displayed on the virtual LCD upon completion of POST. See the table for POST error codes for details.

IMPORTANT:

- Take a note on the messages displayed on virtual LCD before consulting with your service representative. Alarm messages are useful information for maintenance.
- To cope with the error status, first try to issue OS command or power off the CPU blade, then try other actions.

POST Progress



POST Error Code

ASF Codes

ASF message	Description
Memory Init	Initializing and checking memory
AP Init	Initializing multi-processor
Enter Password	Waiting for "supervisor" or "user" password entry
Entering Setup	Entering into BIOS SETUP
USB Init	Detecting and initializing USB device
PCI Device Init	Configuring PCI device
Option ROM Init	Expanding option ROM for PCI device
Video Init	Initializing video controller
Cache Init	Setting processor cache memory
SMBus Init	Configuring SMBus
Keyboard Init	Detecting keyboard
BMC Init	Checking BMC error
Memory Failure	No DIMM is detected during POST. Or, DIMM with fatal error was detected and there is no DIMM available.

POST Progress Codes

POST progress code	Description
28h	Initializing and checking memory
2Ah	Zero Clear of memory
2Ch	Address line test of memory
2Eh	Data line test of memory
0Ah	Initializing processor
2Fh	Setting cache for processor
38h	Shadowing system BIOS
67h	Initializing application processor
69h	Initializing SMI
49h	Initializing PCI device (Resource assignment)
55h	Initializing USB
4Ah	Initializing video controller
4Ch	Shadowing video BIOS
59h	Initializing display feature of POST
C6h	Initializing console redirection feature
4Eh	Displaying copyright
50h	Displaying processor information
60h	Test for expanded memory
62h	Address test for expanded memory
68h	Configuring cache
6Ah	Displaying cache size
87h	Configuring I/O device
98h	Expanding option ROM of PCI device
93h	Configuring multi-processor
9Ch	Setting up SMI
BAh	Initializing SMBIOS
C3h	Displaying POST error

POST progress code	Description
ACh	Starting BIOS SETUP
B0h	Checking POST error
BDh	Displaying Boot menu
97h	Creating MP table
C0h	Starting boot process

Other Messages

Messages displayed on upper line

When STATUS lamp is lighting in green

On-screen message	Description	Action
Prepare To Boot	POST completes normally.	This is not an error.

When STATUS lamp is flashing in red

On-screen message	Description Recommended action
ErrPause in POST	The system is waiting for key entry due to serious POST error. Or, POST is terminated forcedly even the serious POST error has occurred.
	Check the error message on POST screen.
	Take one of the following measures to reboot (reset) the CPU blade. * Issue an OS command. * Press **Ctrl** + **Alt** + **Del**. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
BIOSRecovery run	A fatal error occured on system BIOS ROM.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Replace the CPU blade.
	Contact your service representative.
DIMMG 1 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 01/02 (DIMM Group #1).
DIMMG 2 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 03/04 (DIMM Group #2).
DIMMG 3 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 05/06 (DIMM Group #3).
DIMMG 4 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 07/08 (DIMM Group #4).
DIMMG 5 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 09/10 (DIMM Group #5).
DIMMG 6 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 11/12 (DIMM Group #6).
DIMMG 7 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 13/14 (DIMM Group #7).
DIMMG 8 Unc Err	An uncorrectable error occured on DIMM in DIMM socket 15/16 (DIMM Group #8).
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of failed DIMM Group. 2. Replace the failed DIMM Group.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
FSB 1 Unc Err	An uncorrectable error occurred on internal or external bus of CPU #1.
FSB 2 Unc Err	An uncorrectable error occurred on internal or external bus of CPU #2.
FSB 3 Unc Err	An uncorrectable error occurred on internal or external bus of CPU #3.
FSB 4 Unc Err	An uncorrectable error occurred on internal or external bus of CPU #4.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
MEZ 1 Unc Err	An uncorrectable error occurred on mezzanine card in mezzanine card slot 1.
MEZ 2 Unc Err	An uncorrectable error occurred on mezzanine card in mezzanine card slot 2.
MEZ 3 Unc Err	An uncorrectable error occurred on mezzanine card in mezzanine card slot 3.
MEZ 4 Unc Err	An uncorrectable error occurred on mezzanine card in mezzanine card slot 4.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of failed mezzanine card. 2. Replace the failed mezzanine card.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
SB Unc Err1 SB Unc Err2	An uncorrectable error occurred on SAS unit.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off the CPU blade and then on. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check connection of signal cable between the CPU unit and the SAS unit. 2. Check installation status of DIMMs on SAS unit.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
PCIE Unc ErrX Chipset UncErrX IO Unc ErrX	An uncorrectable error occurred in CPU unit.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
FBD CH1 Unc Err	An uncorrectable error occurred on DIMM in DIMM socket 01, 05, 09, or 13.
FBD CH2 Unc Err	An uncorrectable error occurred on DIMM in DIMM socket 02, 06, 10, or 14.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of DIMMs in DIMM Group#1, 3, 5, or 7. 2. Replace the DIMMs in failed DIMM Group #1, 3, 5, or 7.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
FBD CH3 Unc Err	An uncorrectable error occurred on DIMM in DIMM socket 03, 07, 11, or 15.
FBD CH4 Unc Err	An uncorrectable error occurred on DIMM in DIMM socket 04, 08, 12, or 16.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	You may continue use or run the system. 1. Check installation status of DIMMs in DIMM Group#2, 4, 6, or 8. 2. Replace the DIMMs in failed DIMM Group #2, 4, 6, or 8.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

When STATUS lamp is flashing in amber

On-screen message	Description Recommended action
CPU Reconfigured	The system has started with processor degraded.
	Try the following steps to cancel the error. Run BIOS SETUP, select [Main] - [Processor Settings] - [Processor Retest]- [Yes], then select [Exit] - [Exit Saving Changes].
	If the same error persists, contact your service representative.
Mem Reconfigured	The system has started with memory degraded.
	Try the following steps to cancel the error. Run BIOS SETUP, select [Advanced] - [Memory Configuration] - [Memory Retest]- [Yes], then select [Exit] - [Exit Saving Changes].
	If the same error persists, contact your service representative.
DIMM 1 C Err	A correctable error frequently occurred on DIMM in DIMM socket 01.
DIMM 2 C Err	A correctable error frequently occurred on DIMM in DIMM socket 02.
DIMM 3 C Err	A correctable error frequently occurred on DIMM in DIMM socket 03.
DIMM 4 C Err	A correctable error frequently occurred on DIMM in DIMM socket 04.
DIMM 5 C Err	A correctable error frequently occurred on DIMM in DIMM socket 05.
DIMM 6 C Err	A correctable error frequently occurred on DIMM in DIMM socket 06.
DIMM 7 C Err	A correctable error frequently occurred on DIMM in DIMM socket 07.
DIMM 8 C Err	A correctable error frequently occurred on DIMM in DIMM socket 08.
DIMM 9 C Err	A correctable error frequently occurred on DIMM in DIMM socket 09.
DIMM 10 C Err	A correctable error frequently occurred on DIMM in DIMM socket 10.
DIMM 11 C Err	A correctable error frequently occurred on DIMM in DIMM socket 11.
DIMM 12 C Err	A correctable error frequently occurred on DIMM in DIMM socket 12.
DIMM 13 C Err	A correctable error frequently occurred on DIMM in DIMM socket 13.
DIMM 14 C Err	A correctable error frequently occurred on DIMM in DIMM socket 14.
DIMM 15 C Err	A correctable error frequently occurred on DIMM in DIMM socket 15.
DIMM 16 C Err	A correctable error frequently occurred on DIMM in DIMM socket 16.
Sparing FailOver	A correctable error frequently occurred on DIMM, and the online spare memory is failed over (in online spare memory configuration).
DIMMG 1 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 01/02 (DIMM Group #1). (in memory mirroring configuration)
DIMMG 2 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 03/04 (DIMM Group #2). (in memory mirroring configuration)
DIMMG 3 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 05/06 (DIMM Group #3). (in memory mirroring configuration)
DIMMG 4 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 07/08 (DIMM Group #4). (in memory mirroring configuration)
DIMMG 5 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 09/10 (DIMM Group #5). (in memory mirroring configuration)
DIMMG 6 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 11/12 (DIMM Group #6). (in memory mirroring configuration)

On-screen message	Description Recommended action
DIMMG 7 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 13/14 (DIMM Group #7). (in memory mirroring configuration)
DIMMG 8 Unc Err	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 15/16 (DIMM Group #8). (in memory mirroring configuration)
Mirror B1 Fail	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 01/02, 05/06, 09/10, or 13/14 (in memory mirroring configuration).
Mirror B2 Fail	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM in DIMM socket 03/04, 07/08, 11/12, or 15/16 (in memory mirroring configuration).
Mirror FailOver	Memory mirror failover occurred due to an uncorrectable error occurred on DIMM (in memory mirroring configuration).
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	You may continue use or run the system. 1. Check installation status of the failed DIMM Group. 2. Replace the failed DIMM Group.
	If the same error persists, contact your service representative.
MEZ 1 C Err	A correctable error frequently occurred on mezzanine card in mezzanine card slot 1.
MEZ 2 C Err	A correctable error frequently occurred on mezzanine card in mezzanine card slot 2.
MEZ 3 C Err	A correctable error frequently occurred on mezzanine card in mezzanine card slot 3.
MEZ 4 C Err	A correctable error frequently occurred on mezzanine card in mezzanine card slot 4.
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	You may continue use or run the system. 1. Check installation status of the failed mezzanine card. 2. Replace the failed mezzanine card.
	If the same error persists, contact your service representative.
SB C Err1	A correctable error frequently occurred on SAS unit.
SB C Err2	
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	You may continue use or run the system. 1. Check connection of signal cable between the CPU unit and the SAS unit. 2. Check installation status of DIMMs on SAS unit.
	If the same error persists, contact your service representative.
PCIE C ErrX	A correctable error frequently occurred on CPU unit.
Chipset C Err X	
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	Replace the CPU blade, though you may continue use or run the system.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
FBD CH1 C Err	A correctable error frequently occurred on DIMM in DIMM socket 01, 05, 09, or 13.
FBD CH2 C Err	A correctable error frequently occurred on DIMM in DIMM socket 02, 06, 10, or 14.
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	You may continue use or run the system. 1. Check installation status of DIMMs in DIMM Group#1, 3, 5, or 7. 2. Replace the DIMMs in failed DIMM Group #1, 3, 5, or 7.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
FBD CH3 C Err	A correctable error frequently occurred on DIMM in DIMM socket 03, 07, 11, or 15.
FBD CH4 C Err	A correctable error frequently occurred on DIMM in DIMM socket 04, 08, 12, or 16.
	Issue an OS command to reset the CPU blade, though you may continue use or run the system.
	You may continue use or run the system. 1. Check installation status of DIMMs in DIMM Group#2, 4, 6, or 8. 2. Replace the DIMMs in failed DIMM Group #2, 4, 6, or 8.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

Relation of DIMM Group / DIMM number / Channel number

DIMM Group number	DIMM number	Channel number
1	01	1
	02	2
2	03	3
	04	4
3	05	1
	06	2
4	07	3
	08	4
5	09	1
	10	2
6	11	3
	12	4
7	13	1
	14	2
8	15	3
	16	4

Messages displayed on lower line

When STATUS lamp is flashing in red

On-screen message	Description Recommended action
Proc1 IERR	An error was detected in CPU #1.
Proc2 IERR	An error was detected in CPU #2.
Proc3 IERR	An error was detected in CPU #3.
Proc4 IERR	An error was detected in CPU #4.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
Proc1ThermalTrip	Forced power-off occurred due to a thermal error in CPU #1.
Proc2ThermalTrip	Forced power-off occurred due to a thermal error in CPU #2.
Proc3ThermalTrip	Forced power-off occurred due to a thermal error in CPU #3.
Proc4ThermalTrip	Forced power-off occurred due to a thermal error in CPU #4.
	Take one of the following measures to power on the CPU blade. * Press the POWER switch to power on the CPU blade. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
Proc1Didn'tStart	Failed to start CPU #1.
Proc2Didn'tStart	Failed to start CPU #2.
Proc3Didn'tStart	Failed to start CPU #3.
Proc4Didn'tStart	Failed to start CPU #4.
Proc1 Config Err	The CPU installed in the CPU#1 slot is unsupported or its combination is illegal.
Proc2 Config Err	The CPU installed in the CPU#2 slot is unsupported or its combination is illegal.
Proc3 Config Err	The CPU installed in the CPU#3 slot is unsupported or its combination is illegal.
Proc4 Config Err	The CPU installed in the CPU#4 slot is unsupported or its combination is illegal.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of CPU. 2. Replace the CPU.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
WDT Timeout	Watchdog timer timeout error occurred.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
WDT Power Down	The system is forcedly shutdown due to watchdog timer timeout error.
	Take one of the following measures to power on the CPU blade. * Press the POWER switch to power on the CPU blade. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	If the same error persists, contact your service representative.
SMI Timeout	A timeout error occurred during system management interrupt.
	Take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	If the same error persists, contact your service representative.
DUMP Request!	DUMP switch is pressed.
	Wait until OS dump process completes.
	If the process is not complete, take one of the following measures to reboot (reset) the CPU blade. * Press the RESET switch. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Or, Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	If the same error persists, contact your service representative.
Proc Missing	No CPU is installed.
	1. Checkinstallation status of CPU. 2. Replace the CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
MEZ1 Power Fault	An error occurred on power supply circuit of mezzanine card in mezzanine card slot 1.
MEZ2 Power Fault	An error occurred on power supply circuit of mezzanine card in mezzanine card slot 2.
MEZ3 Power Fault	An error occurred on power supply circuit of mezzanine card in mezzanine card slot 3.
MEZ4 Power Fault	An error occurred on power supply circuit of mezzanine card in mezzanine card slot 4.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	1. Check installation status of the failed mezzanine card. 2. Replace the failed mezzanine card.
	If the same error persists, contact your service representative.
AmbientTempAlm09	A high temperature alarm occurred in CPU unit.
AmbientTempAlm02	A low temperature alarm occurred in CPU unit.
	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
Proc1 Therm % 09	A thermal error occurred on CPU #1.
Proc2 Therm % 09	A thermal error occurred on CPU #2.
Proc3 Therm % 09	A thermal error occurred on CPU #3.
Proc4 Therm % 09	A thermal error occurred on CPU #4.
	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
Battery Alm09	A voltage alarm (upper limit) occurred on Li-Ion battery.
Battery Alm02	A voltage alarm (lower limit) occurred on Li-Ion battery.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check installation status of Li-Ion battery on CPU unit. 2. Replace the Li-Ion battery on CPU unit.
	If the same error persists, contact your service representative.
Proc1 VCCP Alm09	VCCP voltage alarm (upper limit) occurred on CPU #1.
Proc1 VCCP Alm02	VCCP voltage alarm (lower limit) occurred on CPU #1.
Proc2 VCCP Alm09	VCCP voltage alarm (upper limit) occurred on CPU #2.
Proc2 VCCP Alm02	VCCP voltage alarm (lower limit) occurred on CPU #2.
Proc3 VCCP Alm09	VCCP voltage alarm (upper limit) occurred on CPU #3.
Proc3 VCCP Alm02	VCCP voltage alarm (lower limit) occurred on CPU #3.
Proc4 VCCP Alm09	VCCP voltage alarm (upper limit) occurred on CPU #4.
Proc4 VCCP Alm02	VCCP voltage alarm (lower limit) occurred on CPU #4.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
FSB VTT Alm09	FSB VTT voltage alarm (upper limit) occurred.
FSB VTT Alm02	FSB VTT voltage alarm (lower limit) occurred.
B1 FBD VTT Alm09	DIMM VTT voltage alarm (upper limit) occurred.
B1 FBD VTT Alm02	DIMM VTT voltage alarm (lower limit) occurred.
B2 FBD VTT Alm09	DIMM VTT voltage alarm (upper limit) occurred.
B2 FBD VTT Alm02	DIMM VTT voltage alarm (lower limit) occurred.
B1 FBD VCC Alm09	DIMM VCC voltage alarm (upper limit) occurred.
B1 FBD VCC Alm02	DIMM VCC voltage alarm (lower limit) occurred.
B2 FBD VCC Alm09	DIMM VCC voltage alarm (upper limit) occurred.
B2 FBD VCC Alm02	DIMM VCC voltage alarm (lower limit) occurred.
B1 FBD VDD Alm09	DIMM VDD voltage alarm (upper limit) occurred.
B1 FBD VDD Alm02	DIMM VDD voltage alarm (lower limit) occurred.
B2 FBD VDD Alm09	DIMM VDD voltage alarm (upper limit) occurred.
B2 FBD VDD Alm02	DIMM VDD voltage alarm (lower limit) occurred.
BB +1.5v Alm09	+1.5V voltage alarm (upper limit) occurred.
BB +1.5v Alm02	+1.5V voltage alarm (lower limit) occurred.
BB +3.3v Alm09	+3.3V voltage alarm (upper limit) occurred.
BB +3.3v Alm02	+3.3V voltage alarm (lower limit) occurred.
BB +5v Alm09	+5V voltage alarm (upper limit) occurred.
BB +5v Alm02	+5V voltage alarm (lower limit) occurred.
BB +1.2vs Alm09	+1.2VS voltage alarm (upper limit) occurred.
BB +1.2vs Alm02	+1.2VS voltage alarm (lower limit) occurred.
BB +1.25vs Alm09	+1.25VS voltage alarm (upper limit) occurred.
BB +1.25vs Alm02	+1.25VS voltage alarm (lower limit) occurred.
BB +1.5vs Alm09	+1.5VS voltage alarm (upper limit) occurred.
BB +1.5vs Alm02	+1.5VS voltage alarm (lower limit) occurred.
BB +3.3vs Alm09	+3.3VS voltage alarm (upper limit) occurred.
BB +3.3vs Alm02	+3.3VS voltage alarm (lower limit) occurred.
BB +5vs Alm09	+5VS voltage alarm (upper limit) occurred.
BB +5vs Alm02	+5VS voltage alarm (lower limit) occurred.
BB +12vs Alm09	+12VS voltage alarm (upper limit) occurred.
BB +12vs Alm02	+12VS voltage alarm (lower limit) occurred.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
SB +1.2v Alm09	+1.2V voltage alarm (upper limit) occurred on SAS unit.
SB +1.2v Alm02	+1.2V voltage alarm (lower limit) occurred on SAS unit.
SB +1.35v Alm09	+1.35V voltage alarm (upper limit) occurred on SAS unit.
SB +1.35v Alm02	+1.35V voltage alarm (lower limit) occurred on SAS unit.
SB +1.5v Alm09	+1.5V voltage alarm (upper limit) occurred on SAS unit.
SB +1.5v Alm02	+1.5V voltage alarm (lower limit) occurred on SAS unit.
SB +1.8v Alm09	+1.8V voltage alarm (upper limit) occurred on SAS unit.
SB +1.8v Alm02	+1.8V voltage alarm (lower limit) occurred on SAS unit.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check connection status of signal cable between the CPU unit and the SAS unit. 2. Check installation status of DIMMs on SAS unit.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

When STATUS lamp is flashing in amber

On-screen message	**Description** **Recommended action**
HDD 0 Fault	An error was detected in hard disk drive in slot 0.
HDD 1 Fault	An error was detected in hard disk drive in slot 1.
HDD 2 Fault	An error was detected in hard disk drive in slot 2.
HDD 3 Fault	An error was detected in hard disk drive in slot 3.
	Check installation status of failed hard disk drive.
	If the same error persists, contact your service representative.
E-Keying Error	In the Blade Enclosure, combination of installation locations of CPU blade, mezzanine card, and switch module is not correct. Thus, an unconformity of interface signal was detected and the CPU blade failed to power on.
	Refer to the User's Guide of the Blade Enclosure to make sure that the they are installed in correct locations.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
Location Error	In the Blade Enclosure, the installation location of CPU blade is incorrect, or the installation locations of the fan and CPU blade are incorrect. Thus, the CPU blade failed to power on.
	1. Refer to the User's Guide of the Blade Enclosure to make sure that the CPU blade is installed in correct locations. 2. Check if the fans and CPU blades are installed in correct locations.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
Cooling Error	In the Blade Enclosure, the number of fans installed is insufficient or the installed fan is faulty. Thus, the CPU blade failed to power on due to insufficient cooling power.
AmbientTempAlm07	A high temperature warning occurred in CPU unit.
AmbientTempAlm00	A low temperature warning occurred in CPU unit.
	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
Proc1 Therm % 07	A high temperature warning occurred on CPU #1.
Proc2 Therm % 07	A high temperature warning occurred on CPU #2.
Proc3 Therm % 07	A high temperature warning occurred on CPU #3.
Proc4 Therm % 07	A high temperature warning occurred on CPU #4.
	1. Check if fans in Blade Enclosure work normally. 2. Refer to the User's Guide of the Blade Enclosure to make sure that the sufficient number of fans are installed in correct locations. 3. Check if the fans and CPU blades are installed in correct locations. 4. Check installation status of heat sink of the CPU blade. 5. Check if the ambient temperature of installation location satisfies the operation guarantee condition.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
Battery Alm07	Voltage warning (upper limit) occurred on Li-Ion battery.
Battery Alm00	Voltage warning (lower limit) occurred on Li-Ion battery.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check installation status of Li-Ion battery on CPU unit. 2. Replace the Li-Ion battery on CPU unit.
	If the same error persists, contact your service representative.

On-screen message	Description Recommended action
Proc1 VCCP Alm07	VCCP voltage warning (upper limit) occurred on CPU #1.
Proc1 VCCP Alm00	VCCP voltage warning (lower limit) occurred on CPU #1.
Proc2 VCCP Alm07	VCCP voltage warning (upper limit) occurred on CPU #2.
Proc2 VCCP Alm00	VCCP voltage warning (lower limit) occurred on CPU #2.
Proc3 VCCP Alm07	VCCP voltage warning (upper limit) occurred on CPU #3.
Proc3 VCCP Alm00	VCCP voltage warning (lower limit) occurred on CPU #3.
Proc4 VCCP Alm07	VCCP voltage warning (upper limit) occurred on CPU #4.
Proc4 VCCP Alm00	VCCP voltage warning (lower limit) occurred on CPU #4.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check installation status of the failed CPU. 2. Check installation status of heat sink on the failed CPU. 3. Replace the failed CPU.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
FSB VTT Alm07	FSB VTT voltage warning (upper limit) occurred.
FSB VTT Alm00	FSB VTT voltage warning (lower limit) occurred.
B1 FBD VTT Alm07	DIMM VTT voltage warning (upper limit) occurred.
B1 FBD VTT Alm00	DIMM VTT voltage warning (lower limit) occurred.
B2 FBD VTT Alm07	DIMM VTT voltage warning (upper limit) occurred.
B2 FBD VTT Alm00	DIMM VTT voltage warning (lower limit) occurred.
B1 FBD VCC Alm07	DIMM VCC voltage warning (upper limit) occurred.
B1 FBD VCC Alm00	DIMM VCC voltage warning (lower limit) occurred.
B2 FBD VCC Alm07	DIMM VCC voltage warning (upper limit) occurred.
B2 FBD VCC Alm00	DIMM VCC voltage warning (lower limit) occurred.
B1 FBD VDD Alm07	DIMM VDD voltage warning (upper limit) occurred.
B1 FBD VDD Alm00	DIMM VDD voltage warning (lower limit) occurred.
B2 FBD VDD Alm07	DIMM VDD voltage warning (upper limit) occurred.
B2 FBD VDD Alm00	DIMM VDD voltage warning (lower limit) occurred.
BB +1.5v Alm07	+1.5V voltage warning (upper limit) occurred.
BB +1.5v Alm00	+1.5V voltage warning (lower limit) occurred.
BB +3.3v Alm07	+3.3V voltage warning (upper limit) occurred.
BB +3.3v Alm00	+3.3V voltage warning (lower limit) occurred.
BB +5v Alm07	+5V voltage warning (upper limit) occurred.
BB +5v Alm00	+5V voltage warning (lower limit) occurred.
BB +1.2vs Alm07	+1.2VS voltage warning (upper limit) occurred.
BB +1.2vs Alm00	+1.2VS voltage warning (lower limit) occurred.
BB +1.25vs Alm07	+1.25VS voltage warning (upper limit) occurred.
BB +1.25vs Alm00	+1.25VS voltage warning (lower limit) occurred.
BB +1.5vs Alm07	+1.5VS voltage warning (upper limit) occurred.

On-screen message	Description Recommended action
BB +1.5vs Alm00	+1.5VS voltage warning (lower limit) occurred.
BB +3.3vs Alm07	+3.3VS voltage warning (upper limit) occurred.
BB +3.3vs Alm00	+3.3VS voltage warning (lower limit) occurred.
BB +5vs Alm07	+5VS voltage warning (upper limit) occurred.
BB +5vs Alm00	+5VS voltage warning (lower limit) occurred.
BB +12vs Alm07	+12VS voltage warning (upper limit) occurred.
BB +12vs Alm00	+12VS voltage warning (lower limit) occurred.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	Replace the CPU blade.
	If the same error persists, contact your service representative.
SB +1.2v Alm07	+1.2V voltage warning (upper limit) occurred on SAS unit.
SB +1.2v Alm00	+1.2V voltage warning (lower limit) occurred on SAS unit.
SB +1.35v Alm07	+1.35V voltage warning (upper limit) occurred on SAS unit.
SB +1.35v Alm00	+1.35V voltage warning (lower limit) occurred on SAS unit.
SB +1.5v Alm07	+1.5V voltage warning (upper limit) occurred on SAS unit.
SB +1.5v Alm00	+1.5V voltage warning (lower limit) occurred on SAS unit.
SB +1.8v Alm07	+1.8V voltage warning (upper limit) occurred on SAS unit.
SB +1.8v Alm00	+1.8V voltage warning (lower limit) occurred on SAS unit.
	Take one of the following measures to power off then on the CPU blade. * Power off the CPU blade from OS, then press the POWER switch to power on. * Press the POWER switch to power off the CPU blade, then press it again to power on. * Issue a command from Web browser of EXPRESSSCOPE Engine or NEC DianaScope Manager.
	Power off the CPU blade by issuring an OS command or press the POWER switch. Take the CPU blade out of the Blade Enclosure, and install it again. Then, press the POWER switch to turn on the CPU blade.
	1. Check connection status of signal cable between the CPU unit and the SAS unit. 2. Check installation status of DIMMs on SAS unit.
	Replace the CPU blade.
	If the same error persists, contact your service representative.

LAMPS

The CPU blade includes lamps to indicate the CPU blade states by a variety of colors and display patterns on the front panel, hard disk drive, and power supply.

See "Indications of STATUS lamp, their meanings and actions against the indications" in Chapter 2 for details.

SOLVING PROBLEMS

When the CPU blade fails to operate as expected, see the following to find out your problem and follow the instruction given before asking for repair.

If the CPU blade still fails to operate successfully after solving your problem, take a note on the on-screen message and contact your service representative.

CPU Blade

Fail to power-on:

- ❑ Is the proper power supplied to the system?

  → Make sure that the power cord is connected to an AC outlet (or UPS) meeting the power standard of the Blade Enclosure.

  → Use the power cord shipped with the Blade Enclosure. In addition, make sure that the outer cover of the power cord is not broken and the cord at the plug is not bent.

  → Make sure that the breaker of the connected outlet is set to ON.

  → If the power cord is connect to the UPS, make sure that the power of the UPS is set to ON and proper power is output from the UPS. Refer to the manual shipped with the UPS for details.

  → Make sure that the CPU blade is installed correctly.

  The CPU blade BIOS SETUP utility allows you to set the feature for power link with the UPS.

  <Menus to check: [AC-LINK] in [Server] menu>

- ❑ Does the Blade Enclosure contain the required number of power units?

  → Refer to the User's Guide of Blade Enclosure for the required number of power units.

- ❑ Has the EM card been initialized?

  → If the EM card is not initialized, the power unit does not supply the power to the CPU blade.

- ❑ Does the Blade Enclosure contain the required number of fans in proper location?

  → Refer to the User's Guide of Blade Enclosure for the required number of fans and their installation locations.

- ❑ Have the CPU blade (including mezzanine card) and switch modules been installed in proper position?

  → Refer to the User's Guide of Blade Enclosure for proper installation locations.

- ❑ Did you turn on the power of Blade Enclosure within 30 seconds after AC power is supplied to each power unit?

  → Initialization of BMC takes about 30 seconds after AC power is supplied to the CPU blade. After making sure that the AC power is supplied to the CPU blade (the POWER lamp lit amber), wait for about 30 seconds or longer, then turn on the power of Blade Enclosure by using the POWER switch.

- ❑ Immediately after the power is supplied to the CPU blade, the CPU blade in the slot having the larger number is delayed.

  → Initialization of BMC is performed for about 30 seconds after power-on of CPU blade. After that, the CPU blades are powered on sequentially. At power-on sequence, a waiting time {(slot number - 1) × 2 seconds} is inserted between blades. Accordingly, the CPU blade in the slot having the larger number is delayed.

- ❑ It occasionally takes time from power-on operation to CPU blade to turning on the power supply.

  → When power-on operation is executed, the CPU blade notifies the EM card of it, and wait for permission. If the EM card is processing other task and it is busy, permission for power-on is delayed.

The remote power-on through network does not work (Wake On LAN does not work):

- ❑ Is the system shut down forcibly?

  → After the forced shutdown (or pressing the POWER switch on the CPU blade for 4 seconds or longer brings the power of the CPU blade to be turned off forcibly), Wake On LAN does not work. After starting the CPU blade once, perform the normal shutdown processing.

- ❑ Does the LAN port support Wake On LAN?

  → The Wake On LAN feature is available only on LAN ports 1 through 3.

Fail to power-off:

- ❑ Is the POWER switch function disabled?

  → Restart the CPU blade once and then start the BIOS SETUP utility.
  <Menus to check: [Security] – [Power Switch Inhibit]>

POST fails to complete:

- ❑ Is memory installed properly?

  → POST does not operate if DIMM is not installed properly.

- ❑ Are memory devices of large capacity installed?

  → Depending on the installed memory size, it takes much time to check the memory. Wait for a while.

- ❑ Is the keyboard or mouse manipulated just after starting a CPU blade?

  → If you manipulate the keyboard or mouse just after POST is started, POST may detect an error of the keyboard controller by mistake to halt the processing. If this occurs, start POST again. Just after restarting POST, do not perform any operation by using the keyboard or mouse until the BIOS start message appears.

- ❑ Are memory and PCI devices available for CPU blades installed?

  → NEC cannot secure the operation of any device other than those approved by NEC.

"System Configuration Data Read Error" appears and POST pauses:

- ❑ Did you perform any of the following operation?
  - Pressed the POWER switch of the CPU blade to forcedly power off the CPU blade.
  - Pressed the RESET switch of the CPU blade to provide hardware reset.
  - Removed the CPU blade from the Blade Enclosure.
  - Disconnected the power cord from the Blade Enclosure.

  → Contact your service representative.

The MAC address of the onboard LAN of the CPU blade is unknown:

→ You can find the MAC address by the label put near the MP connector on the CPU blade. In addition, you can see the address from Windows or Linux command. See Chapter 3 for details.

Fail to access to internal or external devices (or such devices fail to operate):

- ❑ Are cables properly connected?

  → Make sure that the interface cables and power cord are properly connected. Also make sure that the cables are connected in the correct order.

- ❑ Is the power-on order correct?

  → When the CPU blade has any external devices connected, power on the external devices first, then the CPU blade.

- ❑ Did you install drivers for connected optional devices?

  → Some optional devices require specific device drivers. Refer to the manual that comes with the device to install its driver.

- ❑ Is BIOS configuration correct?

  → When the CPU blade has PCI devices connected, make sure to set the PCI device interrupt and others with the BIOS SETUP utility of the CPU blade. (Most PCI devices generally do not require any change to the configuration, but some boards do require specific settings. Refer to the manual that comes with the board for details to make correct settings.

  <Menus to check: [Advanced] – [PCI Device] – [PCI IRQ xx] x: PCI slot number, [Advanced] – [PCI Configuration] – [PCI Slot 1 Option ROM]>

  → Some devices connected to the serial or USB port may require I/O port address or operation mode settings. Refer to the manual that comes with the board for details to make correct settings.

  <Menu to check: [Advanced] – [Peripheral Configuration], [Server] – [Console Redirection]>

The keyboard or mouse fails to operate:

- ❑ Is BIOS configuration correct?

  → The keyboard and mouse may be disabled with the BIOS SETUP utility of the CPU blade. Check the settings with the BIOS SETUP utility.

  <Menus to check: [Advanced] – [Peripheral Configuration], [Advanced] – [NumLock]>

- ❑ Did you install drivers for keyboard and mouse?

  → Refer to the manual that comes with your OS to check that the keyboard and mouse drivers are installed. (These drivers are installed along with the OS.) Some OS's allow you to change the keyboard and mouse settings. Refer to manual that comes with your OS to check that the keyboard and mouse settings are correct.

- ❑ Is the system used in the status that Windows Server 2003 and Linux are not started?

  → In the following states with the use of USB keyboard and USB floppy disk drive, conduct key entries when the access lamp on the USB floppy disk drive is off (or the floppy disk is not accessed).

  – Press **F6**, **S**, and **Enter** in installation by using the Windows Setup Disk.
  – Start of ROM-DOS Startup FD for command input

Fail to access the hard disk drive:

- ❑ Is the hard disk drive applicable to the CPU blade?

  → Operation of any device that is not authorized by NEC is not guaranteed.

- ❑ Is the hard disk drive properly installed?

  → Securely insert the drive carrier into the Blade Enclosure and lock it with the lever. The hard disk drive is not connected to the internal connector when it is not completely installed.

Fail to start the OS:

- ❑ Is the BIOS configuration correct?

  → Run the BIOS SETUP utility to change the boot order (see Chapter 4).

  <Menus to check: [Boot]>

- ❑ Is a floppy disk in the floppy disk drive?

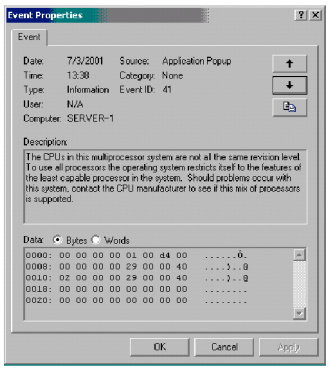
  → Take out the floppy disk and restart the CPU blade.

- ❑ Is the OS broken?

  → Use recovery process to recover the system.

The event log appears at every startup after additional installation of CPU.

→ The different revision processor may be mixed in optional CPU. When Windows is used, following message may appear in the System Log of the Event Viewer after installing the different revision of two or more CPUs in the CPU blade. If this message is logged, it is no problem for operation.


Event Properties
Event
Date: 7/3/2001 Source: Application Popup
Time: 13:38 Category: None
Type: Information Event ID: 41
User: N/A
Computer: SERVER-1
Description:
The CPUs in this multiprocessor system are not all the same revision level. To use all processors the operating system restricts itself to the features of the least capable processor in the system. Should problems occur with this system, contact the CPU manufacturer to see if this mix of processors is supported.
Data: Bytes Words
0000: 00 00 00 00 01 00 d4 00 ......Ô.
0008: 00 00 00 00 29 00 00 40 ....)..@
0010: 02 00 00 00 29 00 00 40 ....)..@
0018: 00 00 00 00 00 00 00 00 ....
0020: 00 00 00 00 00 00 00 00 ....
OK
Cancel
Apply

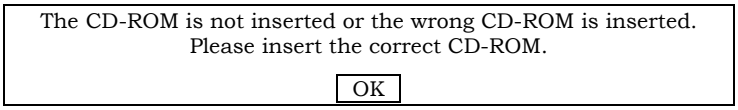
A message "Floppy disk is not ready" appears even the floppy disk has been inserted in the external USB floppy disk drive.

A message "Floppy disk is write-protected" appears even the floppy disk in the USB floppy disk drive is not write-protected.

- ❑ It is not a failure.

  → Retry several times.

Inserted the correct DVD/CD-ROM but the message like the following is displayed:



- ❑ Is the data side of the DVD/CD-ROM dirty or damaged?

  → Take the DVD/CD-ROM out of the DVD-ROM drive, confirm that it is not dirty or damaged, set it back again and click [OK].

Fail to access to the DVD/CD-ROM:

- ❑ Is the DVD/CD-ROM properly set in the DVD-ROM drive tray?

  → Take the disc out of the tray, and set the disc with its label side upward.

- ❑ Is there any soil or crack on DVD/CD-ROM disk?

  → Make sure there is no soil due to fingerprint or others on the disk surface. Also make sure that there is no crack on the disk surface. Clean the disk surface if it is soiled. If read-out still fails, set another disk of which data has been successfully read out to check if the drive can read the disk.

- ❑ Is the CD-R disk in closed status?

  → Close the session or set the disk in closed status, and try to read again.

The OS presents unstable operation:

- ❑ Did you update the system?

  → Installing a network driver after installation of the OS may cause unstable operation. Use the NEC EXPRESSBUILDER DVD to update the system. (See Chapter 6.)

The system does not restart automatically when a stop error occurs, though the system is adjusted to automatically restarting:

→ When the system does not restart automatically, restart it manually.

Cannot turn the power OFF at the blue screen:

→ If you want to turn off the power at the blue screen, execute forced shutdown (forced shutdown: continue to press POWER/SLEEP switch for 4 seconds). The power will not be turned off if you press the switch for less than 3 seconds.

The CPU blade is not found on the network:

- ❑ Is the LAN cable connected?

  → Make sure to connect the LAN cable to the network port on the rear of the CPU blade. Also make sure that the LAN cable to use conforms to the network interface standard.

- ❑ Is BIOS configuration correct?

  → The onboard LAN controller may be disabled with the BIOS SETUP utility of the CPU blade. Check the setting with the BIOS SETUP utility.

  [Advanced] – [PCI Configuration] – [Embedded NIC (Dual Gbit)] – [LAN #1 Option ROM Scan], [LAN #2 Option ROM Scan]>

- ❑ Have the protocol and service already configured?

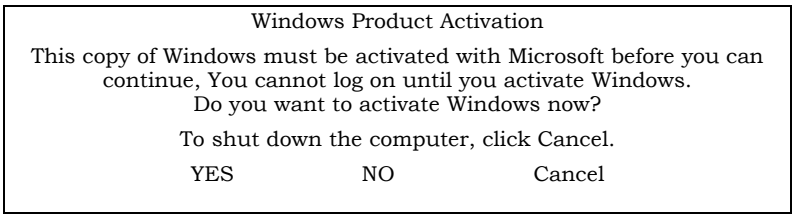
  → Install the distinctive network driver for the CPU blade. Make sure that the protocol, such as TCP/IP, and services are properly specified.

- ❑ Is the transfer speed correct?

  → Open the network property dialog box in control panel to specify the "Link Speed & Duplex" value the same as the value specified for HUB.

The system displays the message below and fails to log in:

→ In Windows Server 2003, the following message will be displayed if you use the operating system without executing the license authentication.
Select "Yes", and execute the procedure for license authentication.


Windows Product Activation
This copy of Windows must be activated with Microsoft before you can continue, You cannot log on until you activate Windows.
Do you want to activate Windows now?
To shut down the computer, click Cancel.
YES
NO
Cancel

The Telnet Service is not installed.

Adjust the computer name to 14 characters or less, and then install the Telnet Service according to <How to install the Telnet Service>.

<How to install the Telnet Service>

1. Click [Run] on Start menu.
2. Type "tlntsvr /service" in the [Open] box, and click [OK].
3. Click Start menu, point to [Control Panel] and click [Administrative Tools] and then click the [Services] to verify whether the Telnet Service is registered.

   * When the installation of Telnet Service is finished, there is no problem if the computer name is set to 15 characters or more.

Problems with Windows

The following system events are logged when Windows Server 2008 is installed.

Event ID: 134

Source: Microsoft-Windows-Time-Service

Level: Warning

Description: NtpClient was unable to set a manual peer to use as a time source because of DNS resolution error on 'time.windows.com,0x9'. NtpClient will try again in 15 minutes and double the reattempt interval thereafter.
The error was: No such host is known. (0x80072AF9)

Event ID: 263

Source: PlugPlayManager

Level: Warning

Description: The service 'ShellHWDetection' may not have unregistered for device event notifications before it was stopped.

Event ID: 7000

Source: Service Control Manager

Level: Error

Description: The Parallel port driver service failed to start due to the following error:
The service cannot be started, either because it is disabled or because it has no enabled devices associated with it.

Event ID: 15016

Source: Microsoft-Windows-Http

Level: Error

Description: Unable to initialize the security package Kerberos for server side authentication. The data field contains the error number.

→ These events do not affect system operation. Ignore these messages.

The following application events are logged when Windows Server 2008 is installed.

Event ID: 63

Source: Microsoft-Windows-WMI

Level: Warning

Description: A provider, Ncs2, has been registered in the Windows Management Instrumentation namespace Root\cimv2 to use the LocalSystem account.

This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.

A provider, IntelEthernetDiag, has been registered in the Windows Management Instrumentation namespace Root\CIMv2 to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.

A provider, WmiPerfClass, has been registered in the Windows Management Instrumentation namespace root\cimv2 to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.

→ These events do not affect system operation. Ignore these messages.

The following errors or warnings are logged when I start the system.

Event ID: 11

Source: IANSMiniport

Level: Warning

Description: Adapter link down: Intel® ~

Event ID: 13

Source: IANSMiniport

Level: Warning

Description: Intel®~ has been deactivated from the team.

Event ID: 16

Source: IANSMiniport

Level: Warning

Description: [Team Name]: The last adapter has lost link. Team network connection has been lost.

→ If you have created a team of network adapters, the above events may be logged when you start the system. These events do not affect the LAN driver operation.

Ignore these messages.

The following system event is logged when Windows Server 2008 is installed.

Event ID: 10

Source: VDS Dynamic Provider

Description: The provider failed while storing notifications from the driver.

The Virtual Disk Service should be restarted. hr=80042505

→ Go to the Microsoft website:
http://support.microsoft.com/kb/948275/en-us/

The following application events are logged when Windows Server 2008 is installed.

Event ID: 1021

Source: Microsoft-Windows-Security-Licensing-SLC

Level: Warning

Description: SLUINotify service has failed to start. hr=0x80070424

Event ID: 1534

Source: Microsoft-Windows-User Profiles Service

Level: Warning

Description: Profile notification of event Create for component {56EA1054-1959-467f-BE3B-A2A787C4B6EA} failed, error code is -2147023591.

→ These events do not affect system operation. Ignore these messages.

There are some cases that an event log is registered as follows when you install Windows Server 2003 x64 Editions.

Source: DCOM

Category: Error

Event ID: 10016

Description: The application-specific permission settings do not grant Local Activation permission for the COM server application with CLSID {555F3418-D99E-4E51-800A-6E89CFD8B1D7} to the user{NT AUTHORITY\LOCAL SERVICE} SID {S-1-5-19}.
This security permission can be modified using the Component Services administrative tool.

→ It is not a problem in operating the system.

There are some cases that an event log is registered as follows when you install Windows Server 2003 x64 Editions.

Event Source: Service Control Manager

Event Type: Error

Event ID: 7011

Description: Timeout (30000 milliseconds) waiting for a transaction response from the Dfs service.

→ When this event is not registered by rebooting the system, it is not a problem in operating the system.

Fail to access to USB devices on Windows Server 2003 x64 Edition or Windows Server 2003.

- Did you apply [Hotfix for Windows x64 "KB921411"] or [Hotfix for Windows Server 2003 (KB921411)] prior to the "Updating the System" process?
  Specify whether "!" is displayed or not on the USB root hub.

  <verification process>

  Click Start menu, right-click [My Computer], and click [Manage] to start Computer Management. Then, select [Device Manager] from the left side window.

  → If "!" is displayed on the USB root hub, apply the Hotfix according to the "Recovery process".
  "Recovery process" refer to Appendix B for details.

Fail to restart the system with the message means "pci.sys missing or corrupt" after you executed "Updating the System" process to Windows Server 2003 x64 Edition or Windows Server 2003.

- During the application of the ChipSet driver by "Updating the System" process, the driver for the USB device may be deleted.

  Follow the process detailed below.

  (1) Start the Recovery console.

  (2) Copy "<Systemdrive>\system32\dllcache\pci.sys" to under "<Systemdrive>\system32\drivers".

  (3) Exit the Recovery console, and restart the system.

  (4) Refer to "Recovery process" and follow to the process detailed to apply [Hotfix for Windows x64 "KB921411"] or [Hotfix for Windows Server 2003 (KB921411)] and "Updating the System".
  "Recovery process" refer to Appendix B for details.

There are some cases that an event log is registered as follows when you operate Windows Server 2003 R2.

Source: IPMIDRV

Type: Error

Event ID: 1001

Description: The IPMI device driver attempted to determine if the system supported an IPMI BMC device. The driver attempted to detect the presence of the IPMI BMC by searching the SMBIOS for Type 38 record. But either no record was found or the record was not compatible with the version of the device driver. If a SMBIOS Type 38 record was detected, the Dump Data field of the event contains a binary representation of the record.

→ If you use "Hardware Management" which is provided by Windows Server 2003 R2, above-shown event log will be registered.

For more details, refer to "Enabling Microsoft Windows Server 2003 R2 Hardware Management" on the following site.

[NEC Express5800 Web Site]
http://www.nec.co.jp/express/download/W2K3_R2

Problems with NEC EXPRESSBUILDER

When the CPU blade is not booted from the NEC EXPRESSBUILDER DVD, check the following:

- ❑ Did you set the NEC EXPRESSBUILDER during POST and restart the CPU blade?

  → If you do not set the NEC EXPRESSBUILDER during POST and restart the CPU blade, an error message will appear or the OS will boot.

- ❑ Is BIOS configuration correct?

  → The boot device order may be specified with the BIOS setup utility of the CPU blade. Use the BIOS setup utility to change the boot device order to boot the system from the optical disk drive first.

  <Menu to check: [Boot]>

- ❑ If [Os installation ***default***] is selected at Boot selection menu, following message is displayed.

  After this message appears, check the error and take the appropriate corrective action according to the message listed in the table below.

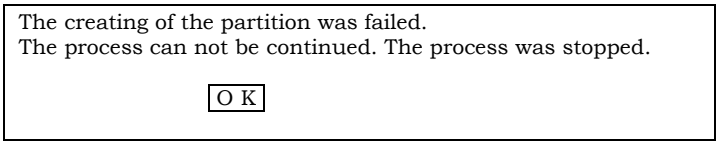
Message	Cause
This EXPRESSBUILDER version was not designed for this computer. Insert the correct version and click [OK]. (When you click [OK], the computer reboots.)	This NEC EXPRESSBUILDER version is not designed for this server. Execute the NEC EXPRESSBUILDER on the compliant server.
EXPRESSBUILDER could not get the hardware parameters written in this motherboard. This version is not designed for this computer or the motherboard may be broken. (When you click [OK], the computer reboots.)	This message is shown when NEC EXPRESSBUILDER could not find system-specific information because of mother board exchange and so on.
The hardware parameters written in this motherboard are incorrect. This version is not designed for this computer or the motherboard may be broken.	

Problems with Express Setup

The system partition is created by size smaller than specified value.

→ In Express Setup, there are some cases that the system partition is created by size about 8MB smaller than specified size.
It is not a problem in operating the system.

Following message appeared when you tried to install Express Setup to the hard disk drive that has smaller capacity than the specified partition size:



→ Cannot continue the setup.

Specify smaller partition size than the capacity of connected hard disk drive, and then retry the setup.

Specified to join the Domain, but the system is installed as Workgroup.

→ When the setup fails to join the Domain during the installation, it will install the system as Workgroup. Open [System] in Control Panel to specify joining the Domain.

Unable to specify the details of Network adapter.

→ In Express Setup, you can not specify the details of Network adapter. Specify them from Control Panel after starting Windows.

Problems with Parameter File Creator

Fail to start Parameter File Creator:

- Parameter File Creator requires to run by "Microsoft(R) HTML Application host".

  → If Parameter File Creator does not start, associate the file type with "Microsoft(R) HTML Application host" via following process.

  1) Click [Run] on Start menu.
  2) Type "%windir%\system32\mshta.exe /register" in the [Open] box, and click [OK].

Problems with RAID System and RAID Controller

Check the following if the server configuring a RAID System does not operate properly or a management utility does not operate correctly. If a relevant item is found, follow the processing method.

Fail to install the OS:

- ❑ Is the RAID configured?

  → Provide proper configuration for the RAID controller by using the WebBIOS.

Fail to start OS:

- ❑ Is the BIOS of the RAID controller changed?

  → Provide proper configuration by using the WebBIOS.

- ❑ Does POST recognize the RAID controller?

  → After making sure that the RAID controller is connected correctly, then power on the CPU blade.

  → If it is not recognized though the connection is proper, the RAID controller may be failed. Contact your service representative.

Rebuild fails:

- ❑ Is the capacity of the hard disk drive to be rebuilt sufficient?

  → The hard disk drive to be rebuilt should have the same capacity of the failed had disk drive.

- ❑ Is RAID0 configured?

  → RAID0 has no data redundancy, therefore, Rebuild is disabled in the RAID0 configuration. Replace the failed hard disk drive, create the configuration data again and initialize the hard disk drives. Then recover the data by using backup data.

Auto rebuild fails:

- ❑ Was a sufficient time taken for hot swap of hard disk drives?

  → To allow the auto rebuild to operate correctly, it should take 60 seconds or longer for the interval between the removal of the failed hard disk drive and the installation of a new hard disk drive.

A hard disk drive fails:

→ Contact your service representative.

Consistency Check cannot be performed:

- ❑ Is logical disk indicated as "Degraded"?

  → Replace the failed hard disk drive and execute rebuild process.

- ❑ Is RAID level of logical disk "RAID0"?

  → The Consistency Check does not work on RAID0 because it has no data redundancy.

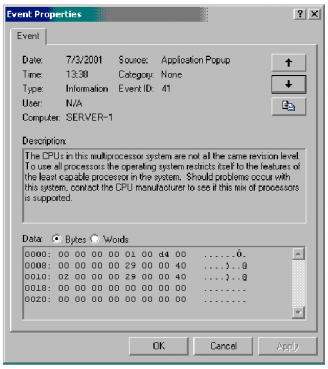
COLLECTING EVENT LOG

This section describes on how to collect the log of various events that occurred on the CPU blade.

IMPORTANT:

- If STOP error, system error, or stall occurred, follow the procedure below after restarting the system.
- Restarting the system due to an error may display a message indicating insufficient virtual memory. Ignore this message and proceed. Restarting the system may result in dumping improper data.

NOTE: The different revision processor may be mixed in additional CPU kit. When Windows is used, following message may appear in the System Log of the Event Viewer after extension the different revision of two or more CPUs in the server. If this message is logged, it is no problem for operation.


Event Properties
Event
Date: 7/3/2001 Source: Application Popup
Time: 13:38 Category: None
Type: Information Event ID: 41
User: N/A
Computer: SERVER-1
Description:
The CPUs in this multiprocessor system are not all the same revision level. To use all processors the operating system restricts itself to the features of the least capable processor in the system. Should problems occur with this system, contact the CPU manufacturer to see if this mix of processors is supported.
Data: Bytes Words
0000: 00 00 00 00 01 00 d4 00 ......Ô.
0008: 00 00 00 00 29 00 00 40 ....)..@
0010: 02 00 00 00 29 00 00 40 ....)..@
0018: 00 00 00 00 00 00 00 00 ....
0020: 00 00 00 00 00 00 00 00 ....
OK
Cancel
Apply

1. Click [Management Tool] – [Event Viewer] from the Control Panel.
2. Select the type of the log to collect.

   On [Application Log], the events related to the running application is archived. On [Security Log], the events related to the security is archived. On [System Log], the events occurred at the item which configures Windows system is archived.
3. Click [Save as...] in the [Run] menu.
4. Enter the file name of archived log in the [File Name] box.
5. Select the type of the log file you want to save in the [File Type] list box and click [OK].

For more information, refer to Windows Online Help.

COLLECTING CONFIGURATION INFORMATION

This section describes on how to collect the information on hardware configuration and internal specification.

In order to collect information, "Diagnostic Program" is used.

> **IMPORTANT:** If STOP error, system error, or stall occurred, follow the procedure below after restarting the system.

1. Point to [Settings] in Start menu, and click [Control Panel].

   The [Control Panel] dialog box appears.

2. Double-click [Management Tool], and double-click [Computer Management].

   The [Computer Management] dialog box appears.

3. Click [System Tool] – [System Information].

4. Click [Save as System Information File] in the [Operation] menu.

5. Enter the file name to save in the [File Name] box.

6. Click [Save].

COLLECTING DR. WATSON DIAGNOSTIC INFORMATION

Dr. Watson collects diagnostic information related to application errors. The location to save the information can be specified as you like. For more information, refer to Chapter 5.

MEMORY DUMP

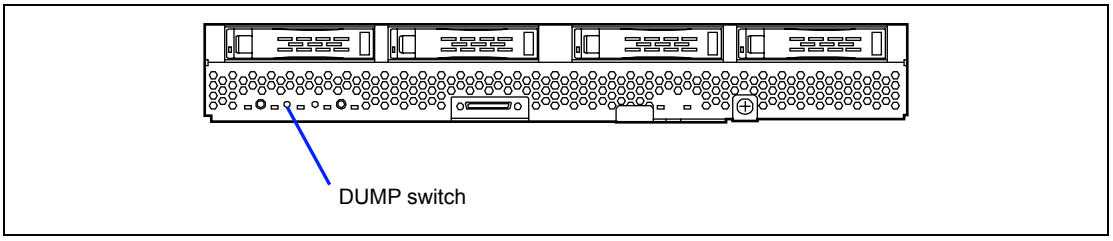
If an error occurs, the dump file should be saved to acquire necessary information.

If you saved the dump to DAT, write down that it is saved as "NTBackup" or "ARCServe" on the label. You can specify the location to save the diagnostic information as you like. For more information, see Chapter 5 for detail.

IMPORTANT:

- Consult with your service representative before dumping the memory. Dumping the memory while the CPU blade is in the successful operation may affect the system operation.
- Restarting the system due to an error may display a message indicating insufficient virtual memory. Ignore this message and proceed. Restarting the system may result in dumping improper data.
- Dumping memory is not available in Linux operating system.

Press the DUMP switch to save the dump file when an error occurs. Insert a metal pin (a straightened large paper clip will make a substitute) into the switch hole to press the DUMP switch.



Pressing the DUMP switch saves the dump file in the specified directory. (Memory dumping may not be available when the CPU stalls.)

RECOVERY FOR Windows SYSTEM

If any file necessary for running the OS is damaged, use the following procedures to recover the system.

IMPORTANT:

- Make sure that the keyboard, display unit, DVD-ROM drive, and floppy disk drive are connected to the CPU blade.
- After recovering the system, see "Updating the System" in Chapter 5 and be sure to update the system.
  Also, you need to update all the drivers after the system update. For more information, see "Installing and Setting Device Drivers" in Chapter 5.
- If the hard disk drive can not be recognized, you can not recover the system.
- Make keyboard entry only while the USB floppy disk drive is not accessed (the access lamp is being off).

For Windows Server 2003 x64 Editions

If the system fails to start for some reason, rebuild the system using the recovery console. Note that this method is recommended for only users and administrators who have a thorough knowledge of the recovery console.

For more information, refer to Online Help.

For Windows Server 2003

If the system fails to start for some reason, rebuild the system using the recovery console. Note that this method is recommended for only users and administrators who have a thorough knowledge of the recovery console.

For more information, refer to Online Help.

MAINTENANCE TOOLS

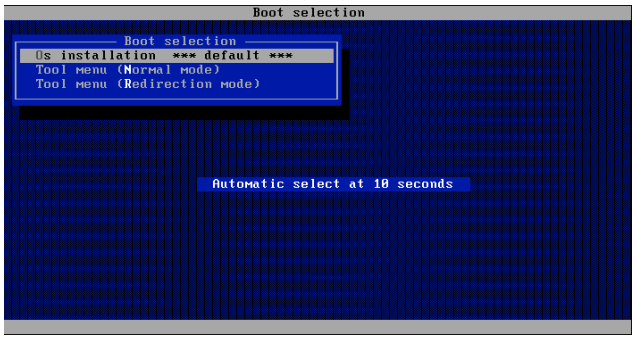
The Maintenance Tools is a tool of this product prevention to maintain, and to analyze the trouble.

Starting Maintenance Tools

The Maintenance Tools is started according to the following procedure.

1. Turn on peripheral devices and the server in this order.
2. Insert the NEC EXPRESSBUILDER DVD supplied with your server into the optical disk drive of your server.
3. Press **Ctrl**, **Alt**, and **Delete** to reboot the server from the NEC EXPRESSBUILDER. (You may also turn off and then on again to reboot the server.)

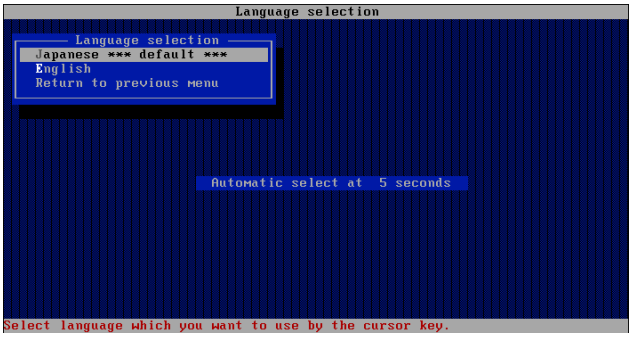
   System boots up displaying Boot selection menu.



IMPORTANT: An initial selection of the menu is "Os installation". "Os installation" starts by the automatic after the Boot selection menu is displayed.

4. When a local console is used, "Tool menu (Normal mode)" is selected.

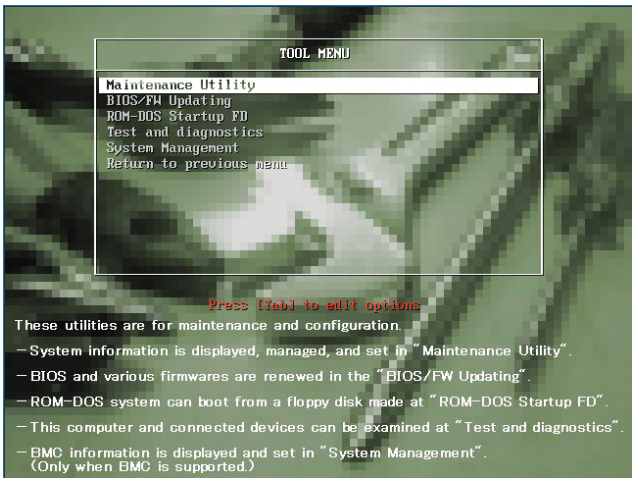
   Moreover, "Tool menu (Redirection mode)" is selected when using it with remote console.


Language selection
Language selection
Japanese *** default ***
English
Return to previous menu
Automatic select at 5 seconds
Select language which you want to use by the cursor key.

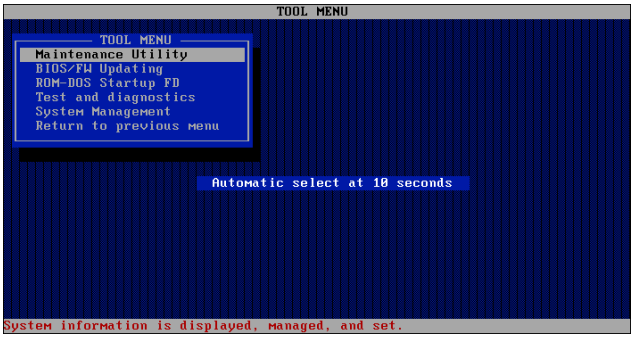
IMPORTANT: An initial selection of the menu is "Japanese". "Japanese" starts by the automatic operation when the operation is not done for five seconds after the Language Selection menu is displayed.

5. "English" is selected.

The tool menu is displayed.


TOOL MENU
Maintenance Utility
BIOS/FW Updating
ROM-DOS Startup FD
Test and diagnostics
System Management
Return to previous menu
Press [Tab] to edit options
These utilities are for maintenance and configuration.
- System information is displayed, managed, and set in "Maintenance Utility".
- BIOS and various firmwares are renewed in the "BIOS/FW Updating".
- ROM-DOS system can boot from a floppy disk made at "ROM-DOS Startup FD".
- This computer and connected devices can be examined at "Test and diagnostics".
- BMC information is displayed and set in "System Management".
(Only when BMC is supported.)

When you use a local console



When you use a remote console

6. Each tool is selected, and it starts.

Function of Maintenance Tools

The following functions can be executed in the Maintenance Tools.

- Maintenance Utility

  The Off-line Maintenance Utility is started in Maintenance Utility. The Off-line Maintenance Utility is an OS-independent maintenance program. When you are unable to start the OS-dependent NEC ESMPRO to troubleshoot a problem, the Off-line Maintenance Utility can be used.

  IMPORTANT:

  - The Off-line Maintenance Utility is intended for use of your service representative. The NEC EXPRESSBUILDER DVD you have created contain a file that describes operation of the utility, but do not attempt to use the utility by yourself. Contact your service representative and follow instructions.
  - See the on-line help for details of the Off-line Maintenance Utility. For further information, ask your service representative.

  The Off-line Maintenance Utility provides the following features.

  – IPMI Information Viewer

    Provides the functions to view the system event log (SEL), sensor data record (SDR), and filed replaceable unit (FRU) and to make a backup copy of them.

    Using this feature, you can find system errors and events to determine a maintenance part.

  – BIOS Setup Viewer

    Provides the functions to export the current configuration data defined with the SETUP utility to a text file.

  – System Information Viewer

    Provides the functions to view information on the processor and the BIOS and export it to a text file.

  – System Information Management

    Provides the function to make a back-up copy of your data.

    Without the backup data, the system-specific information and/or configuration may not be restored.

    Only the authorized personnel is allowed to restore the backup data.

  – System Management

    The parameters of BMC (Baseboard Management Controller) are set for remote control and alert.

- BIOS/FW Updating

  This menu allows you to update the software module such as BIOS and firmware of the server by using the update disk (3.5-inch floppy disk) that is distributed from NEC customer service representative.

  After rebooting the system, an update program is started automatically from floppy disk, and the various BIOS and firmware programs are updated.

  IMPORTANT: Do not turn off the server while the update program is running. If the update processing is discontinued, the system becomes unable to start.

- ROM-DOS startup FD

  Creates a support disk for starting the ROM-DOS system.

- Test and diagnostics

  Execute various tests on the server system to check if the server functions are normal and if the connection between the server and additional board is normal.

  After the Test and diagnostics is executed, a system check program assigned to each model starts. See Chapter 7 for details.

- System Management

  The parameters of BMC (Baseboard Management Controller) are set for remote control and alert.

  This menu's function is the same as the "System Management" of the "Maintenance Utility".

Maintenance Tools with Remote Console

This subsection describes the procedures for using Maintenance Tools with remote console.

Maintenance Tools contains the remote console feature that allows the system administrator to set up the server from the management workstation (management PC) via the network or the server's COM B (serial) port.

IMPORTANT:

- Do not use this feature on any other computer than the server, or on any other server obtained without the NEC EXPRESSBUILDER. Doing so may cause a failure of the server.
- Be sure to select [Tool menu (Redirection mode)] in [Boot selection] menu from the remote console.

Starting

The following two methods are available to start the server.

- Running Maintenance Tools from the management PC via LAN
- Running Maintenance Tools from the management PC via direct connection (COM B)

For the procedure for starting Maintenance Tools with Remote Console, refer to the online document of NEC DianaScope.

IMPORTANT:

- Do not change the boot device order in BOOT menu in BIOS SETUP. NEC EXPRESSBUILDER cannot be used if the DVD-ROM drive is not the first device to launch the system.
- Use the standard LAN port for LAN connection.
- Use the serial port B for direct connection.
- To use this feature, you need to create a configuration file (3.5-inch floppy disk) that includes communication method between the server and the management PC, and various setup parameters. Use NEC DianaScope or run "System Management" menu from NEC EXPRESSBUILDER to create a configuration file. Save the configuration file into the root directory of the floppy disk as the following file name.

  – File name: CSL_LESS.cfg
- If you exit the BIOS SETUP by unusual way (e.g., forced power-off or reset), the redirection process may fail. In such a case, setup again by using the configuration file.

NOTE: The following items of BIOS setup information will be set as shown below.

- LAN Controller: [Enabled]
- Serial Port A: [Enabled]
  Base I/O Address: [3F8]
  Interrupt: [IRQ 4]
- Serial Port B: [Enabled]
  Base I/O Address: [2F8]
  Interrupt: [IRQ 3]
- BIOS Redirection Port: [Serial Port B]
- Baud Rate: [19.2K]
- Flow Control: [CTS/RTS]
- Console Type: [PC ANSI]

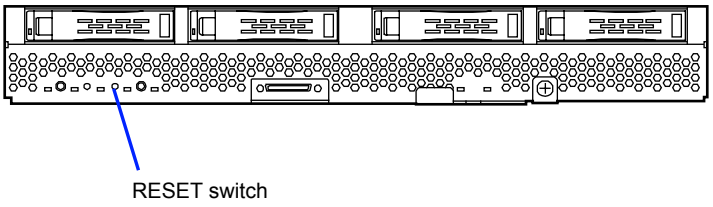
RESETTING THE CPU BLADE

This section describes how to reset the CPU blade when the CPU blade halts or when you want to restore the factory-set BIOS configuration.

> **IMPORTANT:** Resetting the CPU blade clears the DIMM memory and the data in process. To reset the CPU blade when it is not frozen, make sure that no processing is in progress.

- Hardware reset

  Press the RESET switch on the CPU blade. This restarts the CPU blade.



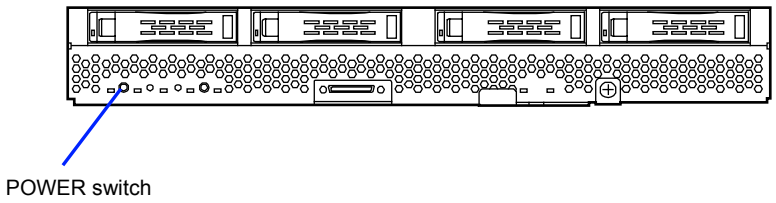
- Software reset

  If the CPU blade halts before starting the OS, press and hold **Ctrl** and **Alt** and press **Delete**. This restarts the CPU blade.

FORCED SHUTDOWN

Use this function when an OS command does not shut down the CPU blade, the POWER switch does not turn off the CPU blade, or resetting does not work.

Press and hold the POWER switch on the CPU blade for at least four seconds. The power is forcibly turned off. To turn on the power back again, wait approximately 10 seconds after turning off the power.



> **IMPORTANT:** If the remote power-on function is used, cycle the power once to load the OS, and turn off the power again in the normal way.

Chapter 9

Upgrading Your Server

This chapter describes optional devices available for the CPU blade, procedures for install or removing such optional devices, and notes on using them.

IMPORTANT:

- Optional devices described in this chapter may be installed or removed by any user. However, NEC does not assume any liability for damage to optional devices or the server or malfunctions of the server resulted from installation by the user. NEC recommends you ask your service representative for install or removing any optional devices.
- Make sure to use only optional devices and cables authorized by NEC. Repair of the server due to malfunctions, failures, or damage resulted from installing such devices or cables will be charged.
- When you made any change to the hardware configuration, make sure to update the system (see Chapter 5 for details.).

SAFETY NOTES

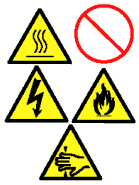
Observe the following notes to install or remove optional devices safely and properly.

⚠ WARNING

Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-5 for details.

- Do not disassemble, repair, or alter the server.
- Do not remove the lithium, Li-Ion, or NiMH battery.
- Do not handle the CPU blade with the power cord being plugged to a power source.

⚠ CAUTION



Observe the following instructions to use the server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-5 for details.

- Make sure to complete device installation.
- Do not install the device with its cover being removed.
- Do not pinch your finger(s) with component.
- Avoid installation in extreme temperature conditions.

ANTI-STATIC MEASURES

The CPU blade contains electronic components sensitive to static electricity. Avoid failures caused by static electricity when installing or removing any optional devices.

- Wear a wrist strap (an arm belt or anti-static glove).

  Wear a wrist strap on your wrist. If no wrist strap is available, touch an unpainted metal part of the cabinet before touching a component to discharge static electricity from your body.

  Touch a metal part regularly when working with components to discharge static electricity.

- Select a suitable work space.
  - Work with the CPU blade on the anti-static or concrete floor.
  - When you work with the CPU blade on a carpet where static electricity is likely to be generated, make sure take anti-static measures beforehand.

- Use a work table.

  Place the CPU blade on an anti-static mat to work with it.

- Cloth
  - Do not wear a wool or synthetic cloth to work with the CPU blade.
  - Wear anti-static shoes to work with the CPU blade.
  - Take off any jewels (a ring, bracelet, or wrist watch) before working with the CPU blade.

- Handling of components
  - Keep any component in an anti-static bag until you actually install it to the CPU blade.
  - Hold a component by its edge to avoid touching any terminals or parts.
  - To store or carry any component, place it in an anti-static bag.

PREPARATION FOR INSTALLATION

To install or remove an optional device (excluding hard disk drive) installed in the CPU blade, you should first remove the CPU blade from the Blade Enclosure.

IMPORTANT: Remove the target CPU blade only. Do not remove any other blank cover or CPU blade from another slot. Be sure to install or remove the CPU blade one by one.

INSTALLATION/REMOVAL PROCEDURE

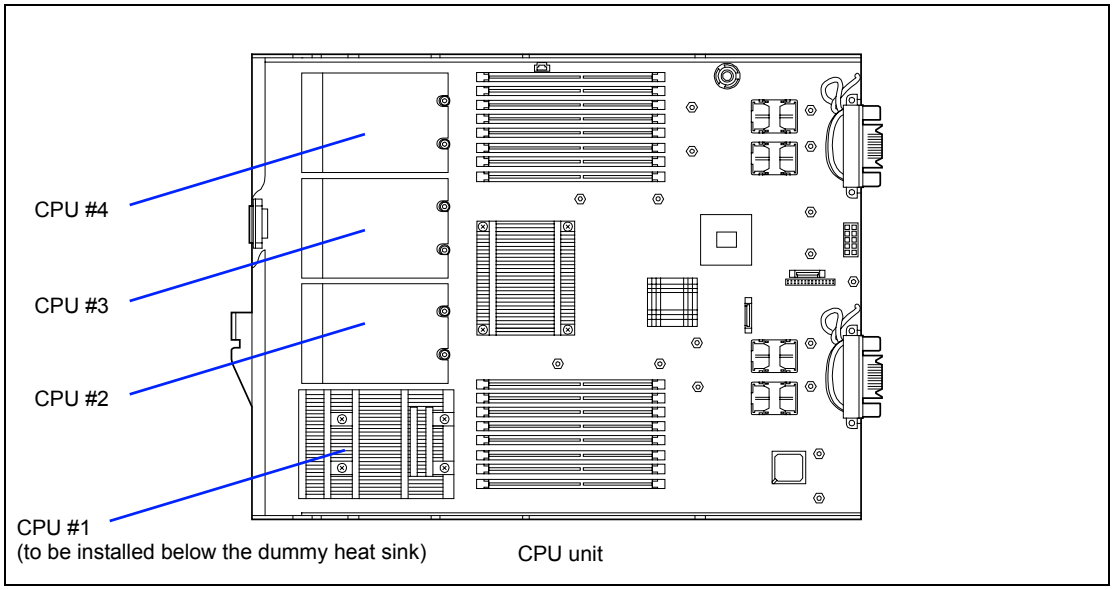
Install or remove the devices in the following procedure.

Processor (CPU)

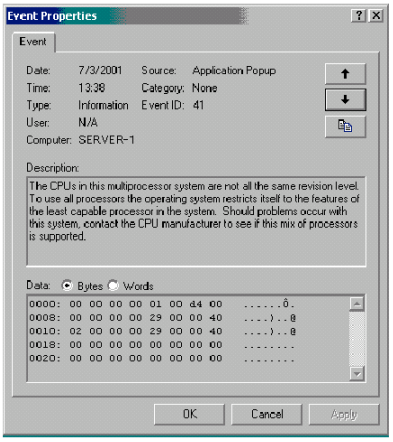
The server may have up to four CPUs installed (Dual-Core Intel Xeon Processor, Quad-Core Intel Xeon Processor).

IMPORTANT:

- The CPU to be added must have the same specification (on the core voltage, clock, and others) as the CPU already installed.
- The CPU is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the CPU. Do not touch the CPU pins by a bare hand or place the CPU directly on the desk. For static notes, see the section "Anti-static Measures" described earlier.
- Do not operate the system until confirming that the additionally installed CPU is in normal state.
- Make sure to use the CPU authorized by NEC. Installing a third-party CPU may cause a failure of the CPU as well as the server. Repair of the server due to failures or damage resulted from installing such a CPU will be charged.



NOTE: If the different revision of the processor is installed in the multiprocessor system, Windows logs the following information every startup. If this message is logged, it is no problem for operation.

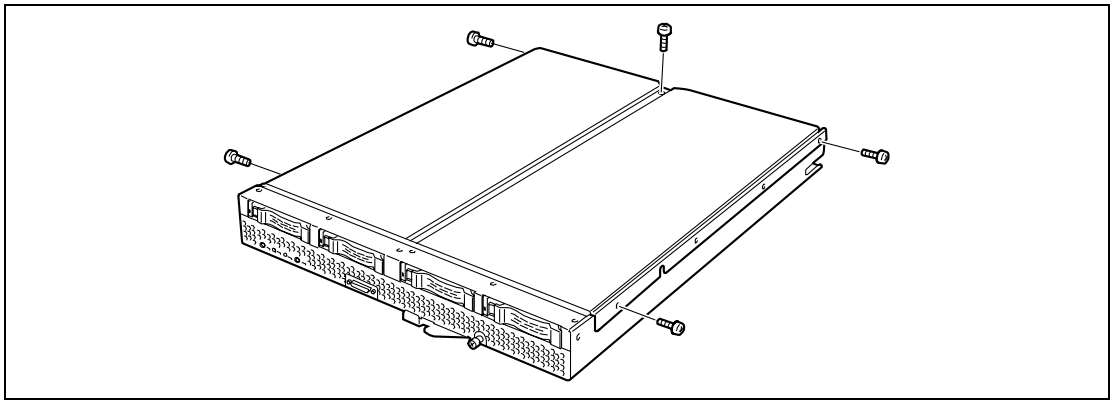

Event Properties
Event
Date: 7/3/2001 Source: Application Popup
Time: 13:38 Category: None
Type: Information Event ID: 41
User: N/A
Computer: SERVER-1
Description:
The CPUs in this multiprocessor system are not all the same revision level. To use all processors the operating system restricts itself to the features of the least capable processor in the system. Should problems occur with this system, contact the CPU manufacturer to see if this mix of processors is supported.
Data: Bytes Words
0000: 00 00 00 00 01 00 d4 00 .....Ô.
0008: 00 00 00 00 29 00 00 40 ....)..@
0010: 02 00 00 00 29 00 00 40 ....)..@
0018: 00 00 00 00 00 00 00 00 ....
0020: 00 00 00 00 00 00 00 00 ....
OK
Cancel
Apply

Installation

Install the CPU in the following procedure.

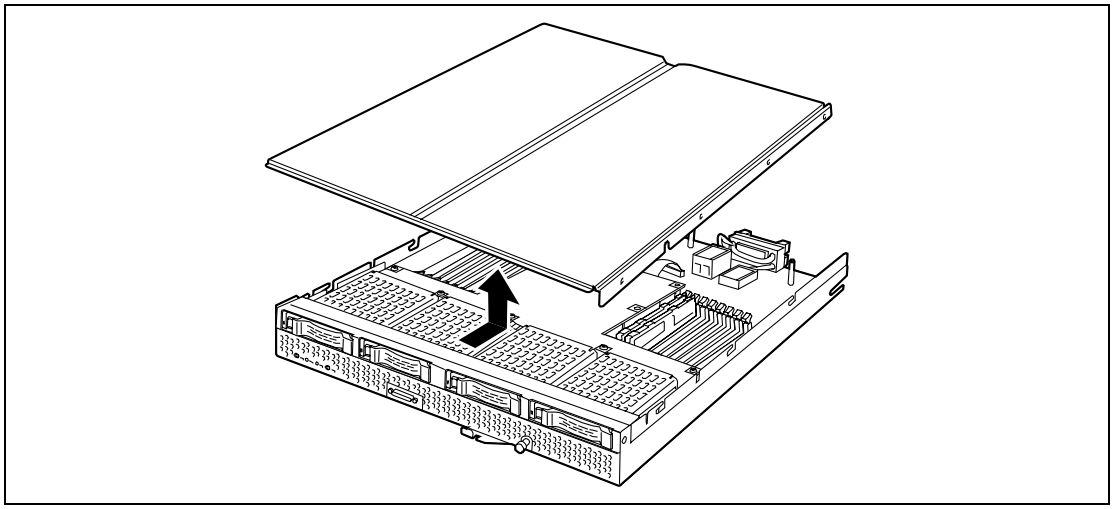
1. After the shutdown processing for the CPU blade to be removed, turn off the power of the CPU blade.
2. Take the CPU blade out from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Put the CPU blade on an anti-static sheet with little dust.
4. Remove the five screws fixing the top cover.

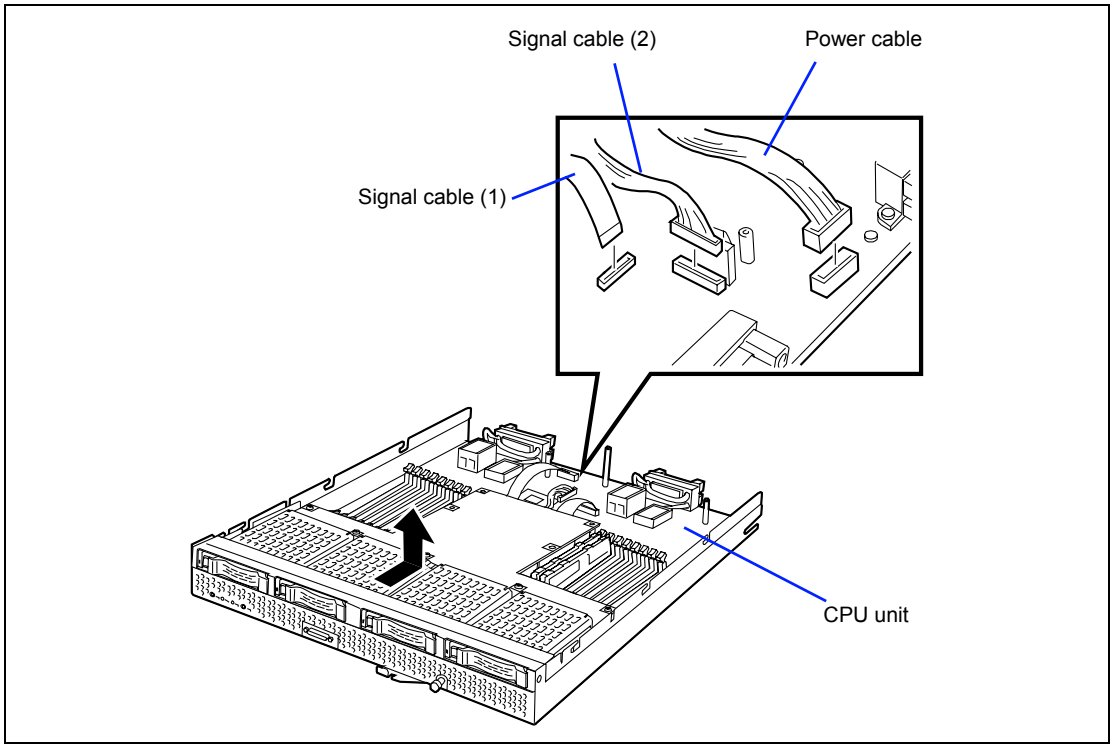


5. Firmly hold the cover, move it slightly toward the rear of the blade, then lift the cover to remove it from the CPU blade.

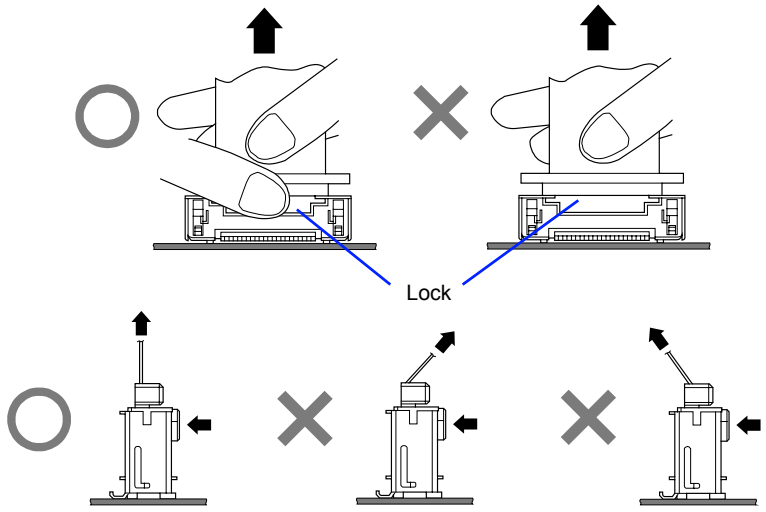
IMPORTANT: Handle the cover carefully so as not to make it contact with any electronic components on the CPU blade.



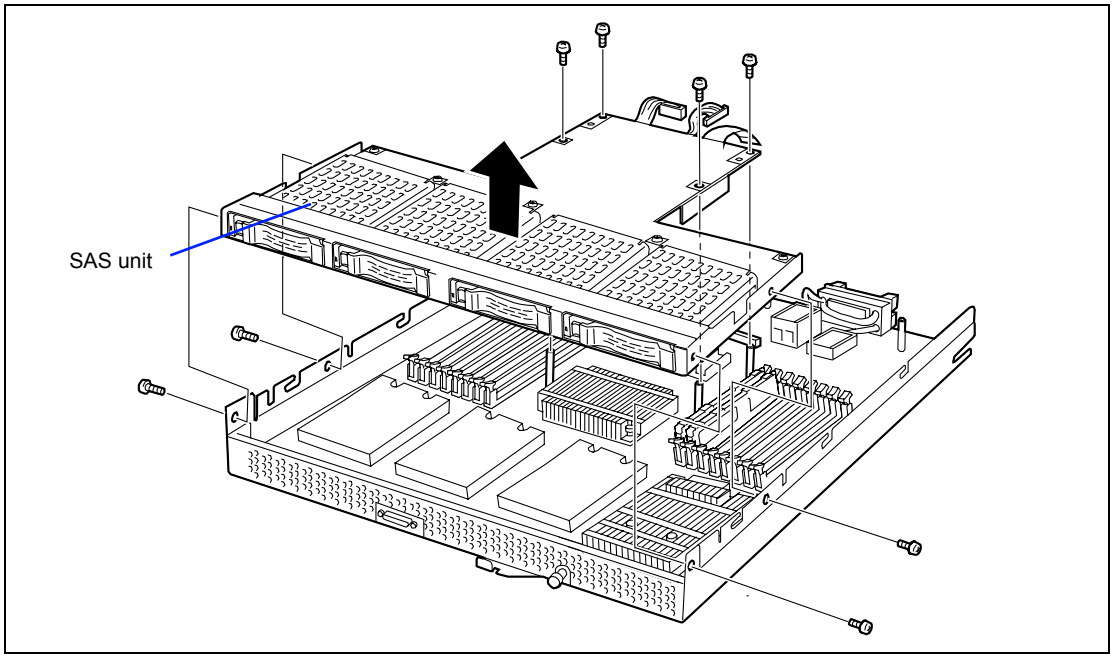
6. Disconnect the power cable, signal cables (1) and (2) from the CPU unit.



IMPORTANT: To disconnect the signal cable (1), pull it straight up while pushing the unlocking tab as shown in the figure below.



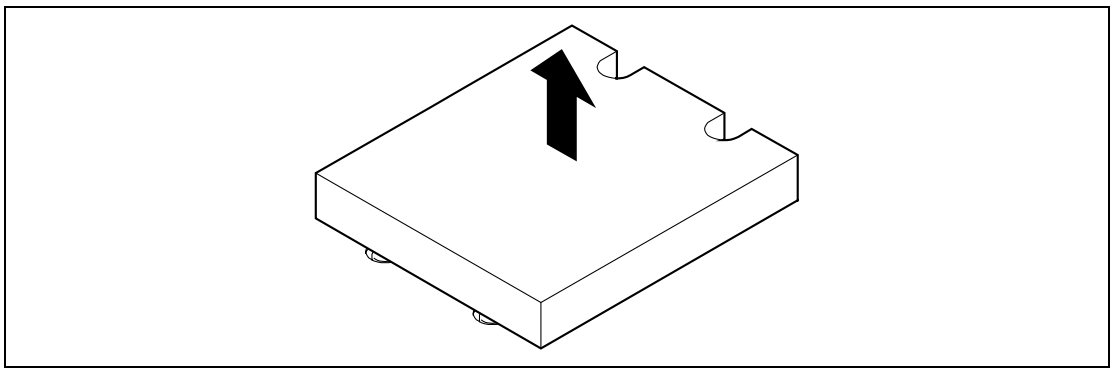
7. Remove the eight screws securing the SAS unit and remove the SAS unit.



8. Confirm the position of the CPU socket.

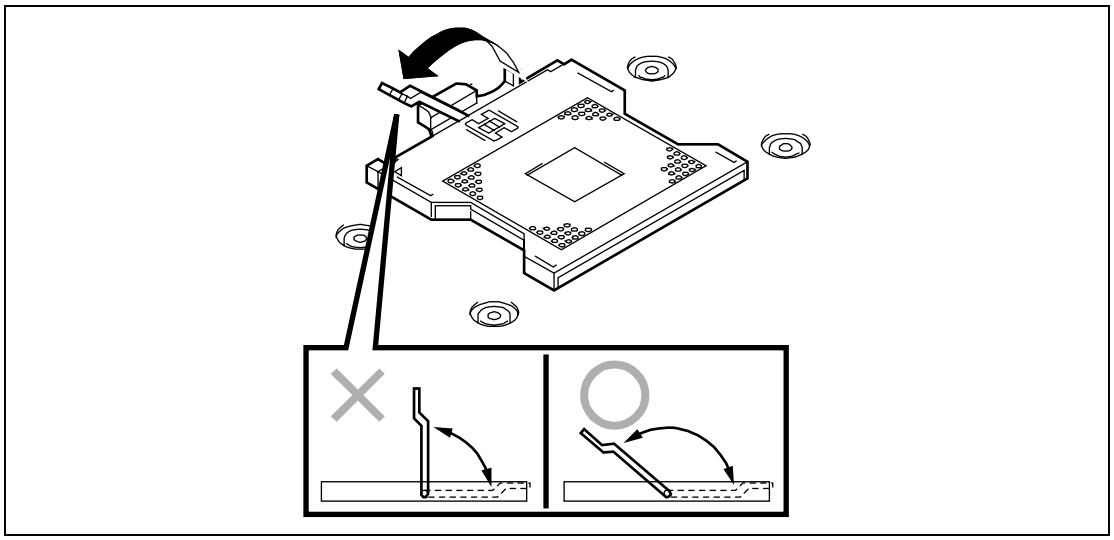
9. Remove the dummy heat sink from the socket.

IMPORTANT: Keep the removed CPU cover for future use.



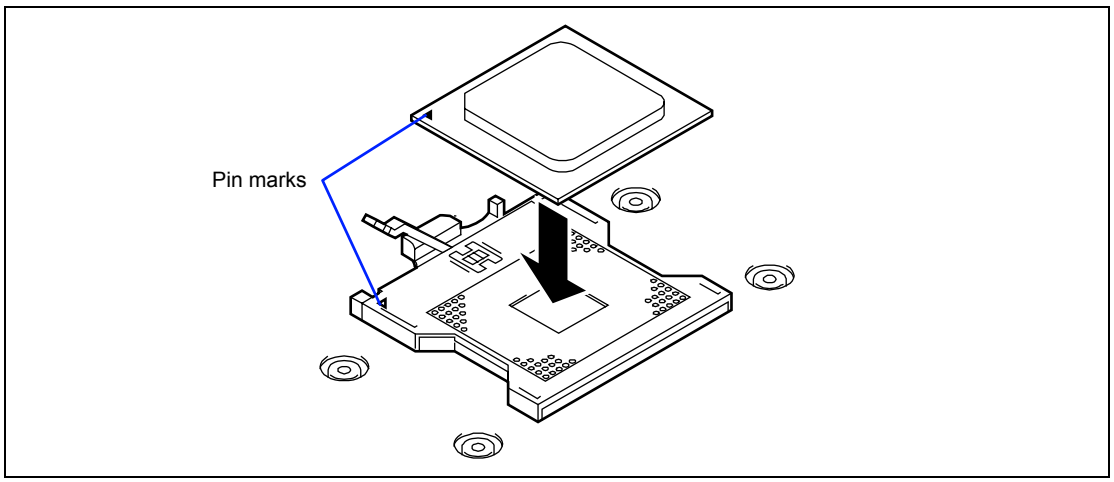
10. Lift the socket lever.

IMPORTANT: Open the lever until it stops. The lever can be opened by 120 degrees or larger.

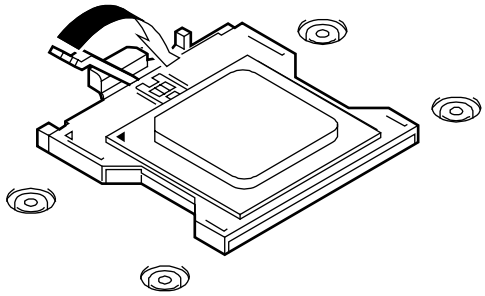


11. Put the CPU on the socket carefully and slowly.

NOTE: Note the direction of the CPU. To prevent the CPU from being inserted into the mating socket incorrectly, a pin mark is put on each of the CPU and the socket. Check the pin marks to insert the CPU into the socket correctly.

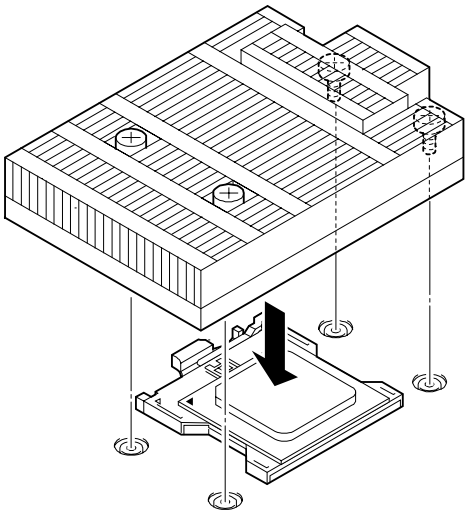


12. Push the CPU lightly to the socket, and push down the lever to fix the CPU to the socket.

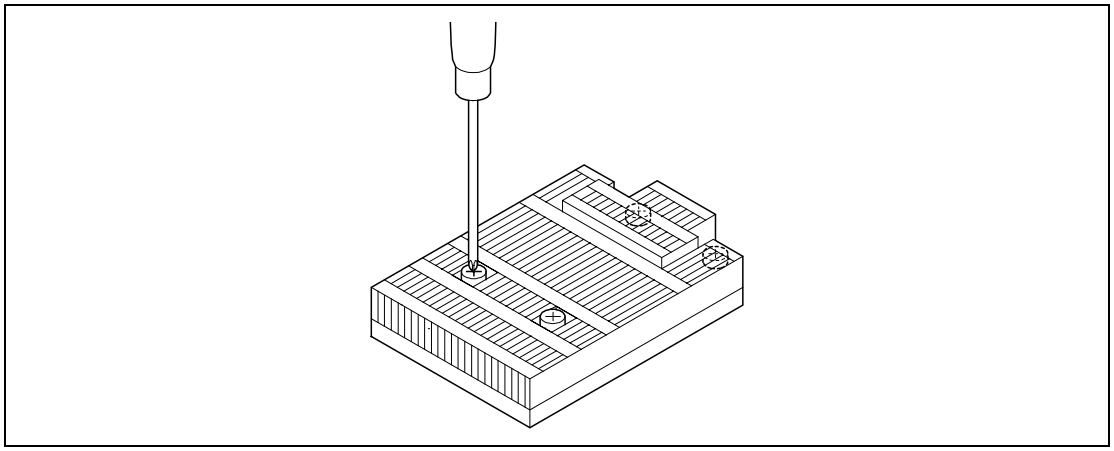


13. Put the heat sink on the CPU carefully.

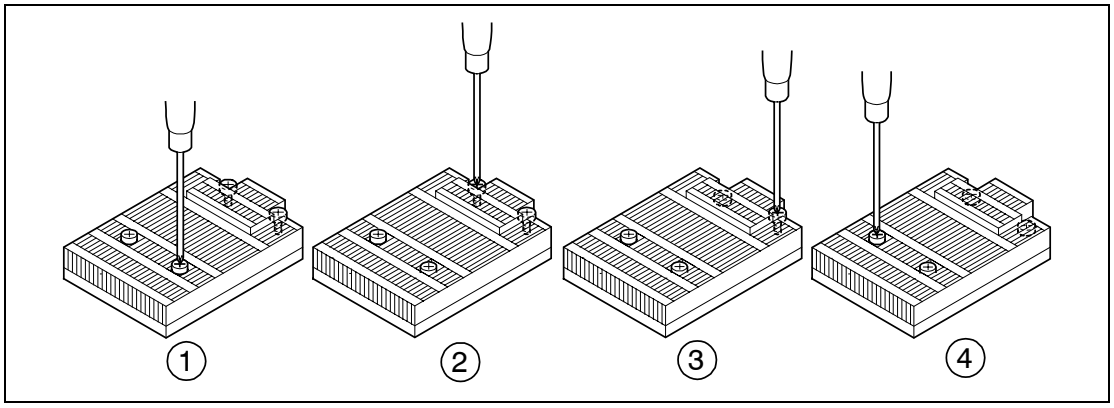
NOTE: Make sure of the orientation of the heat sink. Install a DIMM so that the convex portion of the heat sink faces the DIMM socket side.



14. Tighten the four screws to secure the heat sink.



IMPORTANT: Temporarily tighten the four screws on cater corner, then tighten them securely.



15. Make sure that the heat sink is level with the processor board.

IMPORTANT: If the heat sink is not level, remove it, and make sure that the CPU is installed correctly.

16. Install the components having been removed.

17. Set [Advanced] – [Reset Configuration Data] in the [Advanced] menu to [Yes].

This is required to update the hardware configuration information. See Chapter 4 for details.

18. If the driver shown in [Computer] is set to "ACPI uni-processor PC" or "ACPI single-processor PC", change it to "ACPI multi-processor PC", reboot the system according to the message, and run NEC EXPRESSBUILDER under the Windows operating system to update the system.

Any change is not required if the "Computer" driver is set to "ACPI multi-processor PC".

Removal

To remove the CPU, provide the preparation of the removal following steps 1 to 7 in the installation procedure and perform steps 8 to 14 in the reverse order. To remove the heat sink, slide it a little on the level and remove it.

IMPORTANT:

- Remove the CPU only when it is defected. After replacement, select [Main] – [Processor Settings] – [Processor Retest] and set to [Yes] to restart the CPU blade for clearing the error information (see Chapter 4).
- After operation, the cool sheet at the bottom of the heat sink may adhere to the CPU. To remove the heat sink, first turn it left and right to have it apart from the CPU. If you remove the heat sink with the cool sheet adhering to the CPU, the CPU and/or the socket may be damaged.
- Put a dummy heat sink on CPU socket if it is not equipped with CPU.
- The operation of the CPU blade cannot be secured if the CPU #1 socket is not equipped with CPU.
- To reinstall the CPU having been removed, the cool sheet should be replaced with a new one. Contact you service representative.

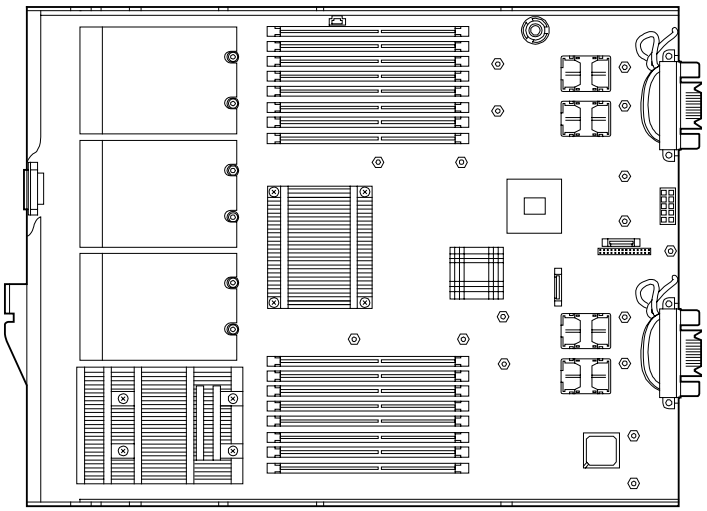
DIMM

The DIMM (Dual Inline Memory Module) is inserted into the DIMM socket on the CPU blade. The CPU blade includes 16 DIMM sockets. Install or remove two DIMMs in pair.

IMPORTANT:

- The DIMM is easily affected by static electricity. Handle the DIMM after making your body contact with a metallic frame section of the server to discharge the static electricity on your body. Do not make bare hands contact with terminals and components on the DIMM. In addition, do not put the DIMM on a desk directly. See "Static Precautions" for details of the static electricity.
- Do not use any DIMM not approved by NEC. If an unapproved third party's DIMM is installed in the server, not only the DIMM but also the CPU blade may be defected. You will be charged by any repair of a malfunction or defect caused by such a device within the warranty period.
- DIMMs for the CPU unit must be populated in a pair. Install DIMMs in ascending order of the slot number. Installed DIMMs must be the same speed and specification. The CPU blade does not operate if DIMMs of different specifications are installed in a single bank.
- Whole capacity of installed memory may not be detected due to restriction of Windows.
  – Windows Server 2003 Standard Edition: 4GB (up to 3.6GB)
  – Windows Server 2003 Enterprise Edition: 4GB (up to 3.6GB)

DIMM sockets
(#16, #15, #12, #11, #8, #7, #4, #3,
#1, #2, #5, #6, #9, #10, #13, and #14 from top)



NOTES:

- Up to 64GB memory can be added.
- In the standard configuration, the CPU blade does not contain memory module. The memory module is a required option.

Adding Order and Precautions

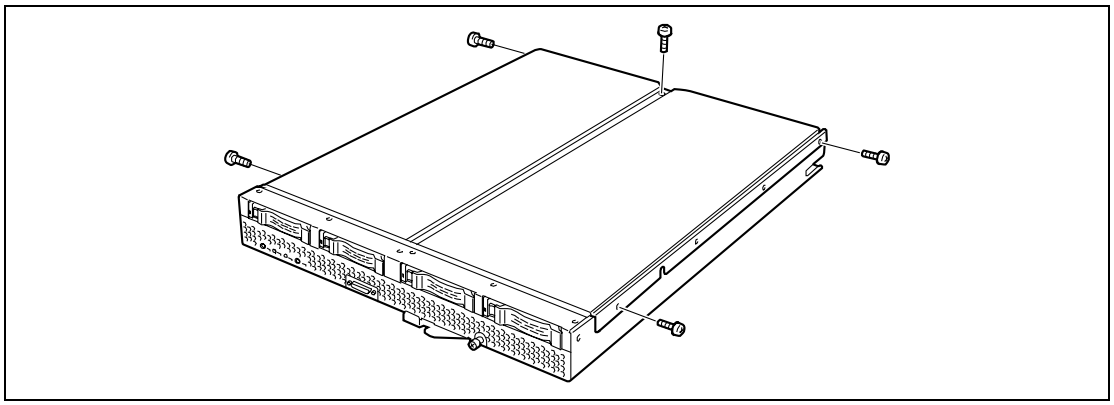
- DIMMs for the CPU unit must be populated in pairs.
- Two DIMMs for the CPU unit must be the same capacity and same speed. (Check the labels on the DIMM board.)
- Install the pair of DIMMs into slots as follows.
  - DIMM (first pair): Slots #1 and #2 ..... DIMM Group #1
  - DIMM (second pair): Slots #3 and #4 ..... DIMM Group #2
  - DIMM (third pair): Slots #5 and #6 ..... DIMM Group #3
  - DIMM (fourth pair): Slots #7 and #8 ..... DIMM Group #4
  - DIMM (fifth pair): Slots #9 and #10 ..... DIMM Group #5
  - DIMM (sixth pair): Slots #11 and #12 ..... DIMM Group #6
  - DIMM (seventh pair): Slots #13 and #14 ..... DIMM Group #7
  - DIMM (eighth pair): Slots #15 and #16 ..... DIMM Group #8

Installation

Install the DIMM on the CPU blade according to the following procedure:

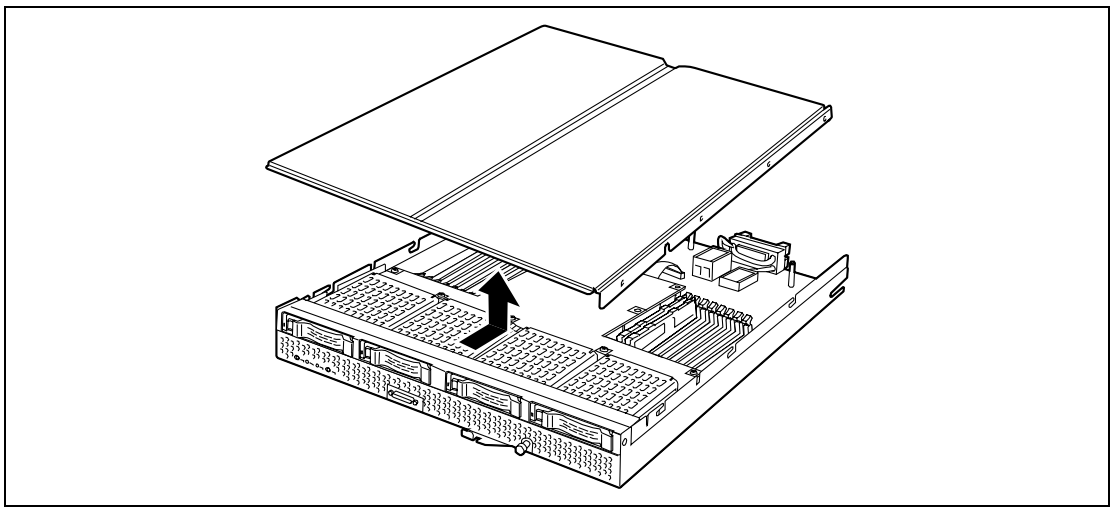
1. After the shutdown processing for the CPU blade to be removed, turn off the power of the CPU blade.
2. Take out the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on anti-static sheet with little dust.
4. Remove the five screws fixing the top cover.

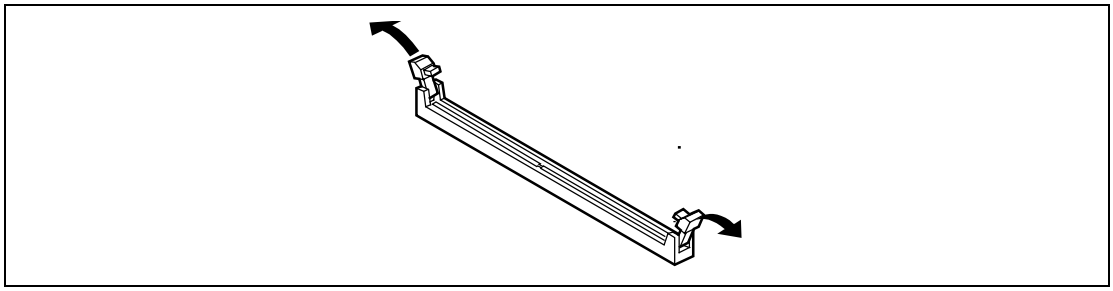


5. Firmly hold the cover, move it slightly toward the rear of the blade, then lift the cover to remove it from the CPU blade.

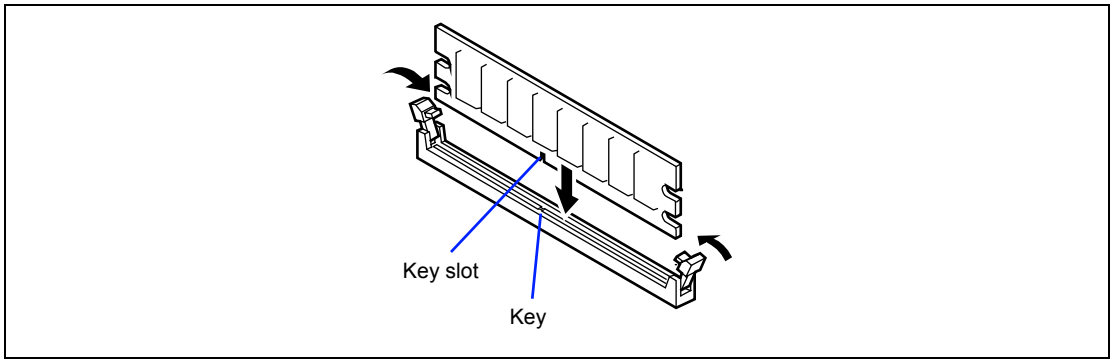
IMPORTANT: Handle the cover carefully so as not to make it contact with any electronic components on the CPU blade.



6. Open the levers at both ends of the DIMM socket.



7. Push the DIMM into the socket straight.



IMPORTANT: Use extreme care when installing a DIMM. Applying too much pressure can damage the socket.

NOTE: Make sure of the orientation of the DIMM. The connecting side of the DIMM has a cut-out (key slot) to prevent an incorrect insertion.

If the DIMM is inserted into the DIMM socket, the levers are automatically closed.

8. Close the lever firmly.
9. Install the DIMMs in another DIMM socket according to steps 6 through 8.
10. Install the components having been removed.
11. Make sure that no error message appears on the POST screen.

    See Chapter 8 for details of the POST error messages.

    If the CPU blade is not started, the DIMM may not be installed on the socket correctly. Install the DIMM again.
12. Run SETUP and select [Advanced] – [Memory Configuration] to make sure that "DIMM Group #x Status" (x: DIMM Group number) is set to "Normal" (see Chapter 4).

13. Set [Advanced] – [Reset Configuration Data] in the [Advanced] menu to [Yes].

    This is required to update the hardware configuration information. See Chapter 4 for details.

14. Set the paging file size to a value larger than the recommended value (installed memory * 1.5) (for Windows).

Removal

Remove the DIMM in the following procedure.

> **NOTE:** To remove the defected DIMM, check the error message appearing in POST or NEC ESMPRO to confirm the CPU blade on which the detected DIMM is installed.

1. After providing the shutdown processing for the CPU blade to be removed, turn off the power of the CPU blade.
2. Pull out the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on anti-static sheet with little dust.
4. Remove the five screws fixing the top cover.
5. Firmly hold the cover, move it slightly toward the rear of the blade, then lift the cover to remove it from the CPU blade.

> **IMPORTANT:** Handle the cover carefully so as not to make it contact with any electronic components on the CPU blade.

6. Open the levers at both ends of the DIMM socket to be removed.

   The lock is released to allow you to remove the DIMM.
7. Repeat steps to remove another DIMM.
8. Install a new DIMM.
9. Install the components having been removed.
10. Turn on the power of the CPU blade. Make sure that no error message appears in POST.

    If an error message appears, write down the message and see the error message list in Chapter 8.
11. Run SETUP, select [Advanced] – [Memory Configuration] – [Memory Retest] – [Yes] and restart the CPU blade to clear the error information of the removed DIMM (see Chapter 4).
12. Set [Advanced] – [Reset Configuration Data] in the [Advanced] menu to [Yes].

    This is required to update the hardware configuration information. See Chapter 4 for details.
13. Set the paging file size to a value larger than the recommended value (installed memory * 1.5) (for Windows).

Online Spare Memory

The CPU blade supports the online spare memory feature.

To use this feature, install the standby DIMMs as spare, then select the supported feature from the BIOS SETUP.

- To enable the online spare memory feature:

  The online spare memory feature puts a memory group into standby status as spare memory. If an unrecoverable error occurs in a DIMM of the running group, the feature automatically copies the contents of the DIMM to the standby one, and changes the running group from the failed one to a standby one to continue the processing.

  To enable the online spare memory feature, additionally install DIMMs according to procedures in "Installation" described earlier. The feature requires 8, 12, or 16 DIMMs of same capacity. The running group and the standby group are determined according to the DIMM installation status.

  The table below shows examples of DIMM installation patterns.

DIMM #01, #02	DIMM #03, #04	DIMM #05, #06	DIMM #07, #08	DIMM #09, #10	DIMM #11, #12	DIMM #13, #14	DIMM #15, #16
1GB (512MB×2)	1GB (512MB×2)	1GB (512MB×2)	1GB (512MB×2)	–	–	–	–
2GB (1GB×2)	2GB (1GB×2)	2GB (1GB×2)	2GB (1GB×2)	–	–	–	–
4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	–	–
8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)

> **IMPORTANT:** To use the feature, DIMMs must be installed according to the predefined condition. If the installed DIMMs do not satisfy the condition, a POST error will occur.

- Parameters in BIOS SETUP

  Run BIOS SETUP (see Chapter 4), select [Advanced] - [Memory Configuration] - [Online Spare Memory], and change parameter to [Enabled]. The factory-set value for this parameter is [Disabled].

- Others

  – The memory capacity indicated by operating system is as follows:
  Total physical capacity of memory installed – Capacity of standby memory

  > **NOTE:** If the online spare memory feature is used with four sets of 1-GB DIMM (eight 512MB DIMMs), the operating system only recognizes a half of the total physical capacity.

  – Enabling the online spare memory feature does not affect the operation of application program.

  – The feature is automatically disabled if the following error message is displayed on POST.
  8200: Online Spare Memory was not ready.

When the standby group starts working by the online spare memory feature, you can confirm it by the following indications.

- The following system log is recorded in Event Viewer of NEC ESMPRO Agent.

  Source: ESMCommonService

  Event ID: 2313

  Description: Failed DIMM has been separated.

  DIMM: XX

  Date: XX

Memory Mirroring

The CPU blade supports the memory mirroring feature.

To use this feature, install the standby DIMMs as spare, then select the supported feature from the BIOS SETUP.

- To enable the memory mirroring feature:

  The memory mirroring feature puts a DIMM into standby status as spare memory. If an unrecoverable error occurs in the running memory board, the feature automatically changes the running DIMM from the failed one to a standby one to continue the processing.

  To enable Memory Mirroring to operate effectively, the memory group in each combination should contain DIMMs of the same capacity. (The area to install DIMMs #01 and #02, #05 and #6, #9 and #10, or #13 and #14 must coincide with the area to install DIMMs #03 and #04, #7 and #8, #11 and #12, or #15 and #16, respectively.)

  The table below shows examples of DIMM installation patterns.

DIMM #01, #02	DIMM #03, #04	DIMM #05, #06	DIMM #07, #08	DIMM #09, #10	DIMM #11, #12	DIMM #13, #14	DIMM #15, #16
2GB (1GB×2)	2GB (1GB×2)	–	–	–	–	–	–
2GB (1GB×2)	2GB (1GB×2)	4GB (2GB×2)	4GB (2GB×2)	–	–	–	–
2GB (1GB×2)	2GB (1GB×2)	2GB (1GB×2)	2GB (1GB×2)	–	–	–	–
2GB (1GB×2)	2GB (1GB×2)	4GB (2GB×2)	4GB (2GB×2)	8GB (4GB×2)	8GB (4GB×2)	–	–
4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	4GB (2GB×2)	–	–
2GB (1GB×2)	2GB (1GB×2)	4GB (2GB×2)	4GB (2GB×2)	8GB (4GB×2)	8GB (4GB×2)	1GB (512MB×2)	1GB (512MB×2)
8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)	8GB (4GB×2)

IMPORTANT: To use the feature, DIMMs must be installed according to the predefined condition. If the installed DIMMs do not satisfy the condition, a POST error will occur.

- Parameters in BIOS SETUP

  Run BIOS SETUP (see Chapter 4), select [Advanced] - [Memory Configuration] - [Memory RAS Feature], and change parameter to [Mirroring]. The factory-set value for this parameter is [Normal].

- Others

  – The memory capacity indicated by operating system is as follows:
  Total physical capacity of memory installed – Capacity of standby memory
  (The operating system only recognizes a half of the total physical capacity.)

  – Enabling the memory mirroring feature does not affect the operation of application program.

  – The feature is automatically disabled if the following error message is displayed on POST.
  8201: Mirror Memory was not ready.

When the standby group starts working by the memory mirroring feature, you can confirm it by the following indications.

- POST displays an error message indicating that the system has started with the failed DIMM group degraded. See Chapter 8 for POST error message.
- The following system log is recorded in Event Viewer of NEC ESMPRO Agent.

  Source: ESMCommonService

  Event ID: 2313

  Description: Failed DIMM has been separated.

  DIMM: XX

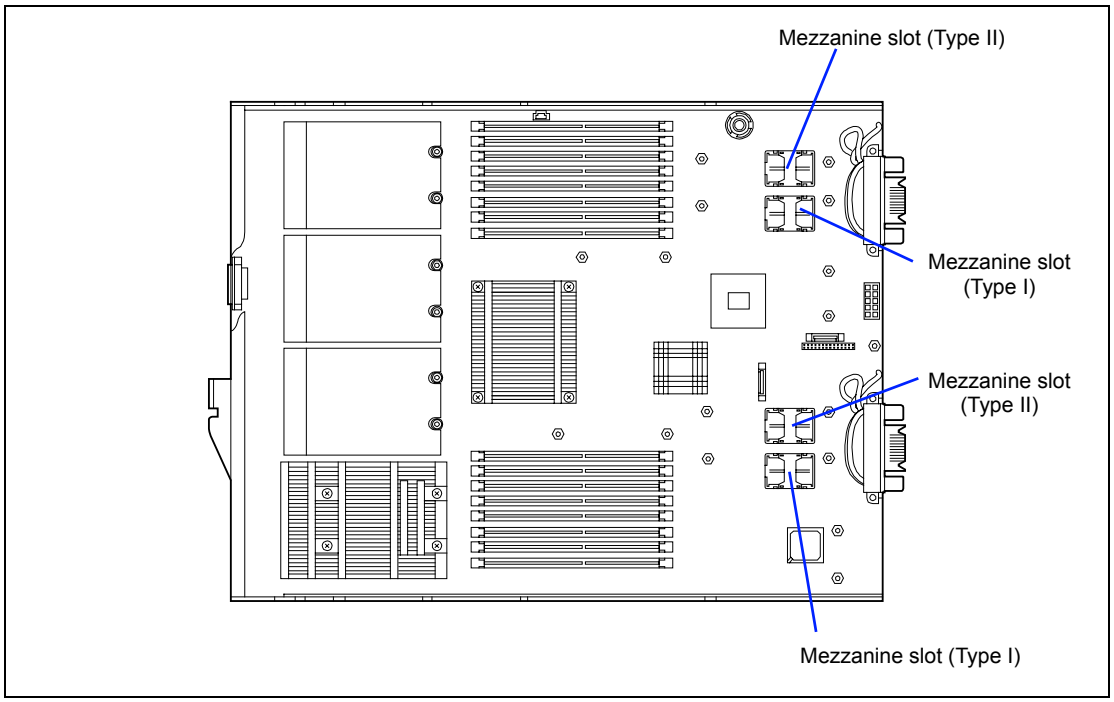
  Date: XX

Mezzanine Card

The CPU blade can contain four mezzanine cards for blade. To install a mezzanine card, use the mezzanine card slot installed on the CPU unit.

IMPORTANT: The mezzanine card is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the mezzanine card. Do not touch the terminals and parts on the mezzanine card by a bare hand and place the cards directly on the desk. For static notes, see the section "Anti-static Measures" described earlier.

NOTE: Some optional mezzanine cards use expansion ROMs on the boards. Refer to the manual provided with the board to check whether the expansion ROMs should be expanded. Use the BIOS setup utility "SETUP" for the setting. See Chapter 4 for details.



Notes

Note the followings in the installation or removal of the mezzanine card.

- Be careful not to make your hands touch the terminals of the mezzanine card slot directly. Otherwise, the oil and/or dirt on the hands may adhere to the terminals to result in contact failure.
- For the option ROMs on the unbooted mezzanine card, set "Disabled" with the BIOS SETUP utility.
- If a bootable mezzanine card (such as FibreChannel controller or LAN board) is installed, check the boot priority on the [Boot] menu of the BIOS SETUP utility.

Installation

Install a mezzanine card in mezzanine card slot in the following procedure.

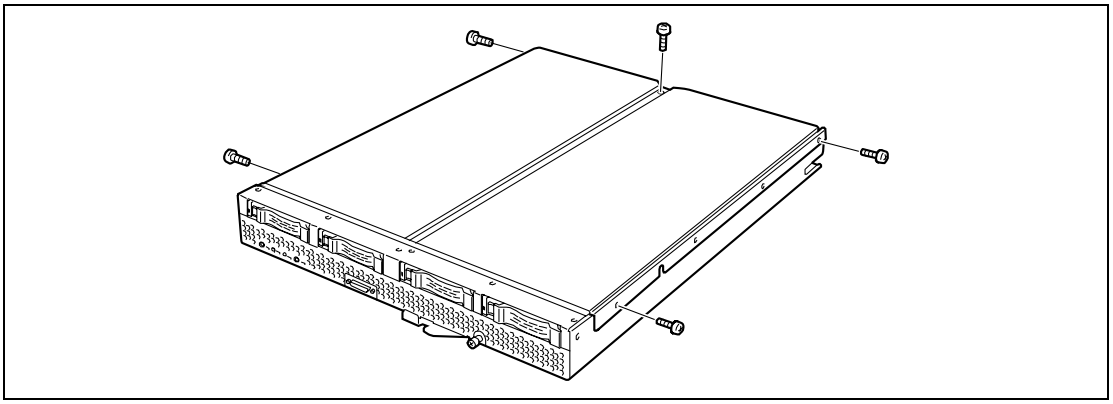
IMPORTANT: There are two types of mezzanine card for blade, Type I and Type II.
The Type I mezzanine card can be installed in either of connectors Type I and Type II.
The Type II mezzanine card can be installed in Type II connector only.
To install the Type I mezzanine card, start installation from the bottom slot (for Type I).

NOTE: Before installing mezzanine card, make sure that the shape of mezzanine card slot matches with that of connector of the option card.

1. After the shutdown processing for the CPU blade to be removed, turn off the power of the CPU blade.
2. Pull out the CPU blade from the Blade Enclosure.

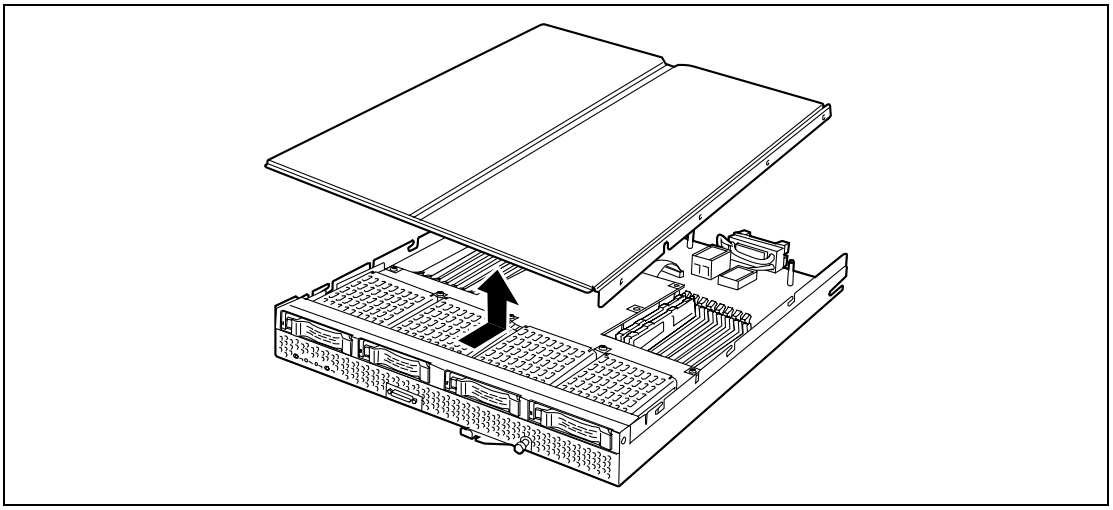
   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on anti-static sheet with little dust.

4. Remove the five screws fixing the top cover.

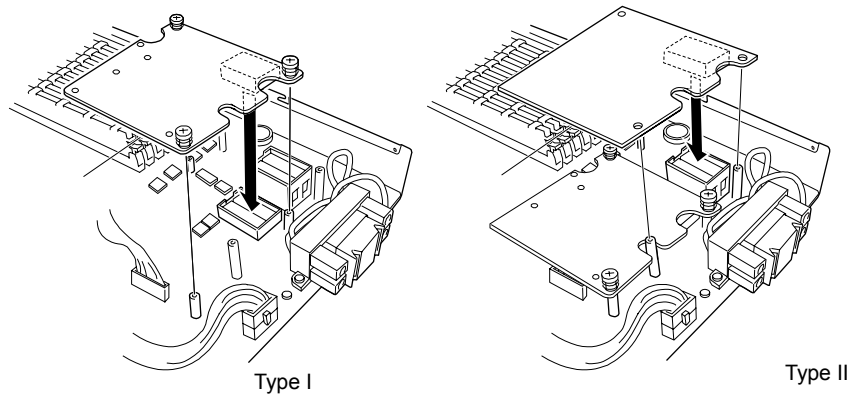


5. Firmly hold the cover, move it slightly toward the rear of the blade, then lift the cover to remove it from the CPU blade.

IMPORTANT: Handle the cover carefully so as not to make it contact with any electronic components on the CPU blade.



6. From top of the CPU unit, position the connector of the mezzanine card so that it aligns the connector of the mezzanine card slot, and insert the mezzanine card straight into the slot.



IMPORTANT:

- Do not make your body contact with the terminals on the board. Some malfunction may occur if the board is installed with dirt and/or oil adhering to the terminals.
- Insert the mezzanine card straight into the connector. The terminal or connector may be damaged if it is inclined.
- If the board cannot be installed securely, remove the board once and then install it again. Adding excess force to the board may cause the board to be damaged.

7. Push the mezzanine card with fingers firmly toward the CPU unit to connect the card to the slot.
8. Tighten the fixing screws to fix the mezzanine card to the spacer on the CPU unit.
9. Install the top cover having been removed.
10. Secure the top cover with five screws.
11. Install the CPU blade having been removed to the Blade Enclosure according to the User's Guide of the Blade Enclosure.
12. Turn on the power of the CPU blade. Make sure that any error messages associated with the board do not appear on the POST screen.
    See Chapter 8 for details of POST error messages.
13. Select [Advanced] – [Reset Configuration Data] on the [Advanced] menu and set to [Yes]. This is required to update the hardware update information. See Chapter 4 for details.
14. Run the BIOS configuration utility of the installed board to provide setup for the board.
    The existence of the utility and its start and operation procedures vary depending on the type of the board. Refer to the documentation coming with the board for details.

Removal

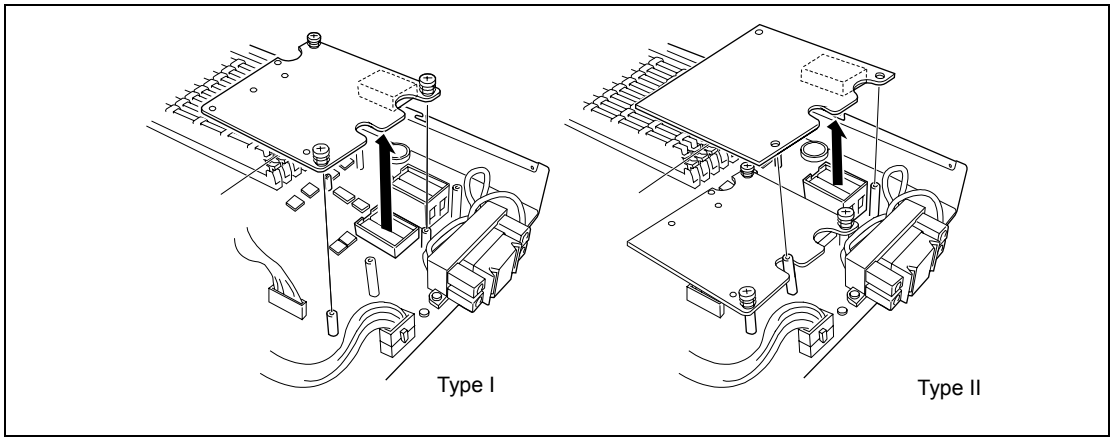
To remove the board, follow the procedure below:

1. Shutdown the CPU blade to be removed and turn off the power of the CPU blade.
2. Take the CPU blade out from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Put the CPU blade on an anti-static sheet with little dust.
4. Remove the five screws fixing the top cover.
5. Firmly hold the cover, move it slightly toward the rear of the blade, then lift the cover to remove it from the CPU blade.

   IMPORTANT: Handle the cover carefully so as not to make it contact with any electronic components on the CPU blade.
6. Remove three screws fixing the mezzanine card.
7. Hold both ends of the mezzanine card and pull out the card from the slot.

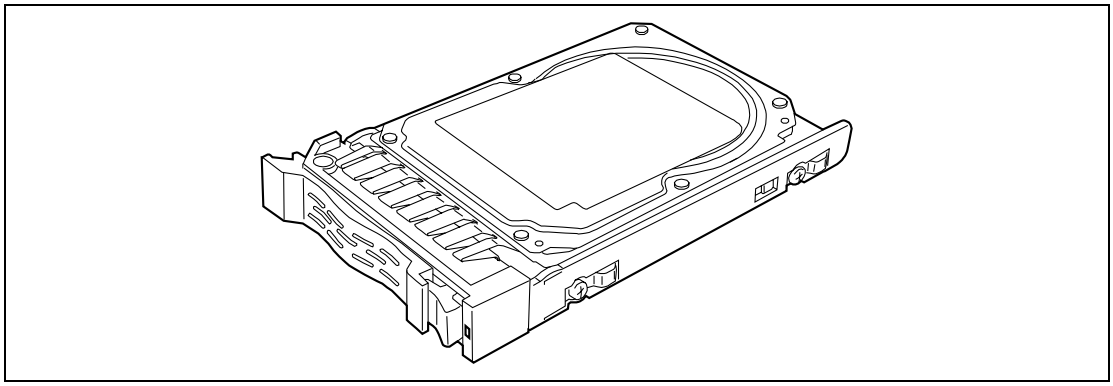
   Lift the card perpendicular to the CPU unit.



8. Install the top cover having been removed.
9. Secure the top cover with five screws.
10. Install the CPU blade having been removed to the Blade Enclosure according to the User's Guide of the Blade Enclosure.

Hard Disk Drive

The CPU blade can contain up to four 2.5-inch hard disk drives. This section describes the installation and removal (or replacement) procedure.



IMPORTANT:

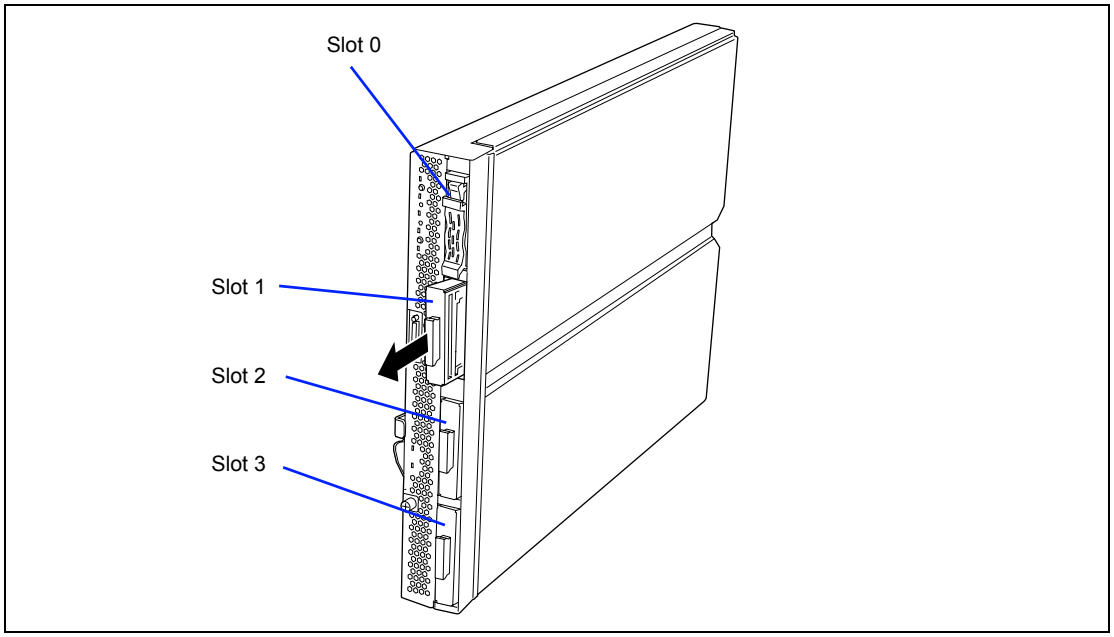
- The hard disk drive is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the hard disk drive. Do not touch the terminals and parts on the hard disk drive by a bare hand and place the hard disk drive directly on the desk. For static notes, see the section "Anti-static Measures" described earlier.
- Do not use any hard disk drives not approved by NEC. If an unapproved third party's hard disk drive is installed in the CPU blade, not only the hard disk drive but also the CPU blade may be defected.
- If hard disk drives of different disk capacities co-exist in the CPU Blade, the unit can operate normally. However, to use a RAID drive based on the onboard RAID controller, use hard disk drives of the same model number.
- Pay attention not to apply shock or vibration to the hard disk drive. Do not push the surface of the hard disk drive when installing or removing the hard disk drive. Doing so may cause a failure of the hard disk drive.
- Use the hard disk drive mounted on the tray dedicated to the CPU blade. Do not remove the hard disk drive from the tray to mount any other hard disk drive. Doing so may cause a failure of the hard disk drive.

Installation or Removal of Hard Disk Drive

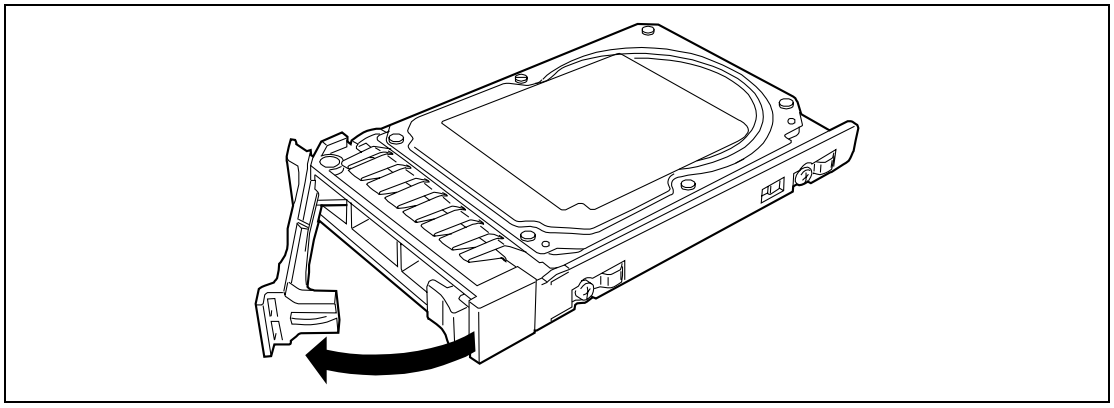
Install the hard disk drive in the following procedure. Install the hard disk drive in slot 0, 1, 2, and then 3 in the order.

1. To install a hard disk drive in the slot 1 and the subsequent slot, remove a dummy tray from the slot before installing a hard disk drive.

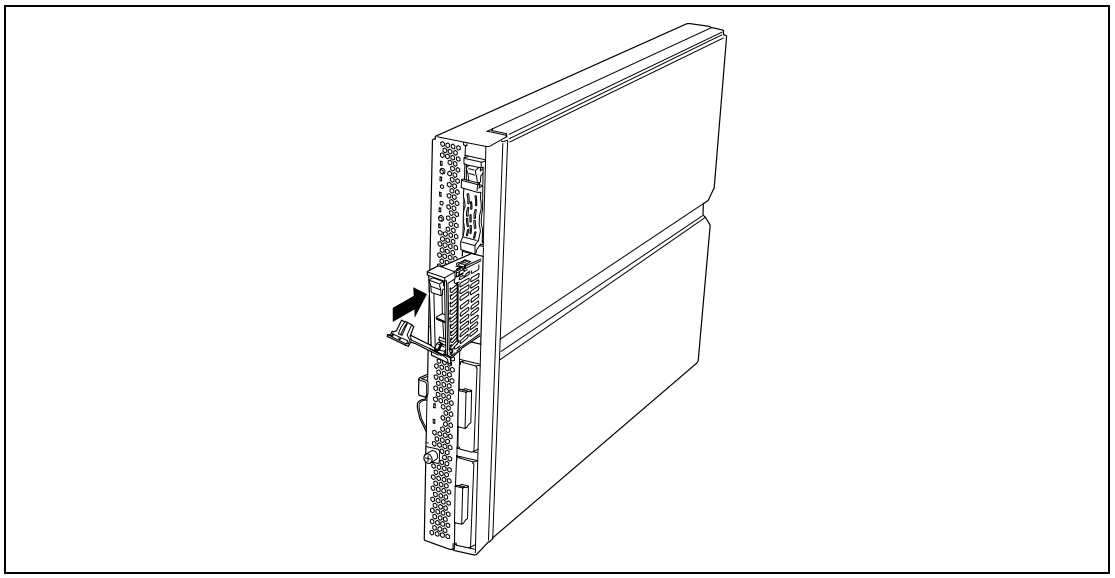
IMPORTANT: Keep the removed dummy tray for future use.



2. Unlock the lever on the hard disk drive to make the handle opened.

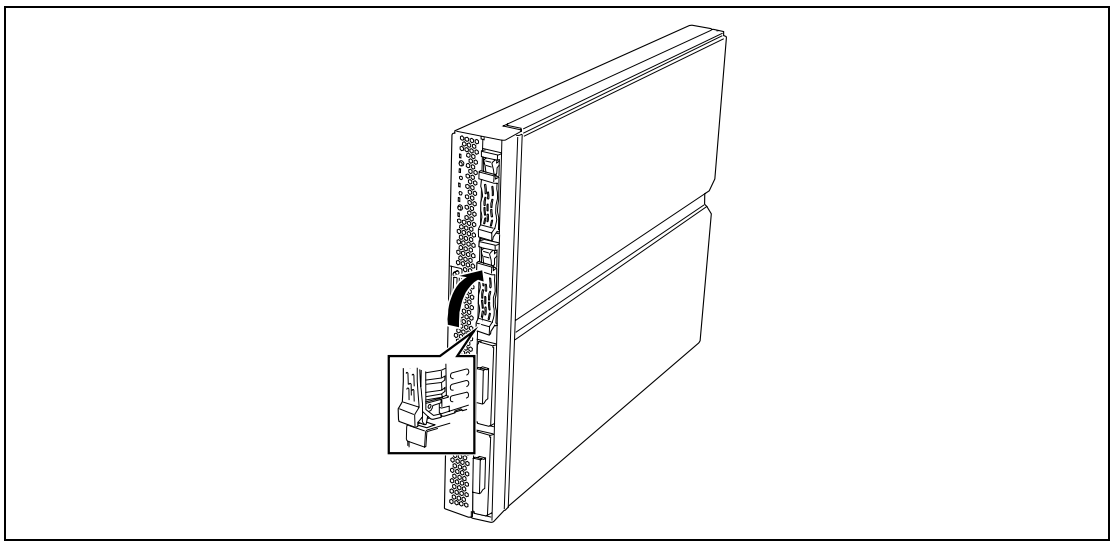


3. Hold the hard disk drive so that its BP connector faces the hard disk drive slot and the lever on the front of the drive carrier faces the top.
4. Insert the end of the drive carrier into the hard disk drive slot slowly and carefully.



5. Insert the drive carrier until it hits the slot end, and close the lever.

NOTE: Make sure that the hook of the lever is hung on the frame.



The removal procedure is the reverse of the installation procedure.

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Appendix A

Specifications

Item		NEC Express5800/B140a-T		
		N8400-055AF	**N8400-078F**	**N8400-079F**
CPU	Type	Intel® Xeon® processor 72xx	Intel® Xeon® processor 73xx	Intel® Xeon® processor 74xx
	Clock	2.93GHz	1.60GHz	2.40GHz
	FSB	1066MHz		
	2nd Cache	2x4MB	2x2MB	3x3MB
	Standard	1		
	Maximum	4		
Chipset		Intel 7300 chipset		
Memory	Standard	None (Required option)		
	Maximum	64GB		
	Adding time	8 (512MB/1GB/2GB/4GB, two DIMMs in pair)		
	Memory module	DDR2-667 FB-DIMM		
	Error check	ECC		
Hard disk drive	Standard	None		
	Maximum	584GB (146GB×4)		
Graphics (VRAM)		640x480 to 1024x768 (VRAM 2MB)		
Auxiliary input device	Floppy disk	Option (USB)		
	CD/DVD-ROM	Option (USB)		
Mezzanine card slot	Type 1	4 max. (when Mezzanine Card Type 2 is not used)		
	Type 2	2		
LAN interface		1000Base-T × 4		
External interface		SUV connector (to be connected to the front panel, serial ×1, VGA×1, USB×2) ×1		
External dimensions (mm)		366 (H) × 516 (D) × 52 (W)		
Weight		11 kg Max.		
Power supply		+12Vdc and +5VS (supplied from the Blade Enclosure)		
Power consumption (+12Vdc)		800 W		
Environmental requirements	Temperature	10 to 35°C		
	Humidity	20 to 80% RH (no condensation)		

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Appendix B

Installing the Operating System

SETUP AND RE-SETUP OF CPU BLADE OF DISKLESS MODEL

Local Installation

Before the installation, make sure that the CPU blade is connected with the keyboard, display unit, DVD-ROM drive and floppy disk drive. If any device is not connected, always connect it to the CPU blade.

Notes

Before starting the local installation, read the notes described here carefully.

Key Entry

Conduct key entries while the access lamp on the USB floppy disk drive is off (or the floppy disk is not accessed).

System Update

If the system configuration is modified, always provide the system update by using NEC EXPRESSBUILDER DVD shipped with the system. See Chapter 6 for details.

Installing on the Mirrored Volume (Windows Server 2008)

When re-installing the OS to a hard disk drive which has been upgraded to Dynamic Disk, only the simple dynamic volume is available for installation.

If you want to install the OS on a volume that is mirrored using [Disk Management], invalidate the mirroring and reset to the basic disk before the installation, and validate the mirroring again after the installation.

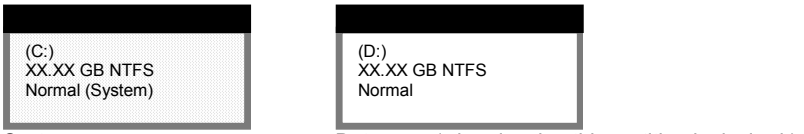
You can create, invalidate, or delete the mirror volume by using [Disk Management] in [Computer Management].

Re-installation to Dynamic Disk

When the system is Windows Server 2003 x64 Edition or Windows Server 2003

In the re-installation to the hard disk drive upgraded to a dynamic disk, one or more partitions other than the partition in which OS is to be installed may exist and you may desire to leave the partitions. If so, note the followings.

<Example>



System　　Data area (when leaving this partition is desired.)

- As the partition in which OS will be installed, select the partition in which OS has been installed previously.
- Select "Use current file system as it is (no change)" for the format of the OS partition.

About the System Partition Size

When the system is Windows Server 2008 64-bit (x64) Edition:

Required partition size =
size required to install OS + paging file size + dump file size + application size

Size required to install OS	= 11,600MB (Full Installation) or = 4,100MB (Server Core Installation)
Paging file size (recommended)	= Installed memory size x 1.5
Dump file size	= Installed memory size + 300MB
Application size	= Required size

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- Regardless of the size of the mounted memory, or the Write debugging information (type of memory dump), the maximum size of the dump file is 'The size of the mounted memory + 300MB'.
- If you install any application program or the like, add necessary space to the partition to install these programs.

Example:

The partition size required for a system with an installed memory size of 512 MB and a full installation of the operating system:

11,600MB + (512MB x 1.5) + (512MB + 300MB) + application size
= 13,180MB + application size.

If the provided partition size is smaller than that required to install the OS and paging file, expand the partition size or utilize a larger disk. If your system does not have a sufficient dump file size, divide the required file space into multiple disks by performing the steps below:

1. Set the system partition size to a size sufficient to install the OS and paging file.
2. See "Setting for Solving Problems" to write the debug information of the dump file onto another disk.

If there is not enough disk space to write the debug information, add another disk for the dump file.

When the system is Windows Server 2008 32-bit (x86) Edition

Required partition size =
size required to install OS + paging file size + dump file size + application size

Size required to install OS	= 6,300MB (Full Installation) or = 2,200MB (Server Core Installation)
Paging file size (recommended)	= Installed memory size x 1.5
Dump file size	= Installed memory size + 300MB
Application size	= Required size

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- The maximum paging file size which can be set on one partition is 4095MB. If the above paging file size exceeds 4095MB, specify 4095MB for the paging file size.
- The maximum dump file size for the system with more than 2GB memory mounted is '2048MB + 300MB'.
- If you install any application program or the like, add necessary space to the partition to install these programs.

Example:

The partition size required for a system with an installed memory size of 512 MB and a full installation of the operating system:

6,300MB + (512MB x 1.5) + 512MB + 300MB + application size
= 7,880MB + application size.

If the partition where the operating system is installed is smaller than that required to install the OS and paging file, expand the partition size or utilize a larger disk. If your system does not have a sufficient dump file size, divide the required file space into multiple disks by performing the steps below:

1. Set the partition size to a size sufficient to install the OS and paging file.
2. See "Setting for Solving Problems" to write the debug information of the dump file onto another disk.

If there is not enough disk space to write the debug information, add another disk for the dump file.

When the system is Windows Server 2003 x64 Editions:

The size for the partition that the system is to be installed can be calculated from the following formula.

Size necessary to install the system	+ Paging File Size + Dump File Size + Application Size
Size necessary to install the system	= 4100MB (Windows Server 2003 x64 Editions) = 4100MB (Windows Server 2003 x64 Editions with Service Pack2) = 5900MB (Windows Server 2003 x64 Editions + Service Pack2 CD-ROM)
Paging File Size (Recommended)	= Mounted Memory Size * 1.5
Dump file Size	= Mounted Memory Size + 1MB
Application Size	= Required Size

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- Regardless of the size of the mounted memory, or the Write debugging information (type of memory dump), the maximum size of the dump file is 'The size of the mounted memory + 1MB'.
- If you install any application program or the like, add necessary space to the partition to install these programs.

For example, if the mounted memory size is 512MB, the partition size will be calculated by the above formula as follows:

4100MB + (512MB * 1.5) + (512MB + 1MB) + Application Size
= 5381MB + Application Size

Dividing into the partition of the recommended size into multiple disks as written below will solve problem that it cannot be reserved in one disk.

1. Set the "Size required for installation + Paging file size".
2. See Chapter 5 and set that debugging information (equivalent to the dump file size) is to be written to a separate disk.

   (If the disk does not have enough free space to enable the dump file size to be written, then after installing the system using the "Size required for installation + Paging file size", install an additional new disk.)

When the system is Windows Server 2003:

The size for the partition that the system is to be installed can be calculated from the following formula.

Size necessary to install the system	+ Paging File Size + Dump File Size + Application Size
Size necessary to install the system	= 3500MB = 3500MB (Windows Server 2003 R2 with Service Pack2) = 5300MB (Windows Server 2003 R2 + Service Pack2 CD-ROM)
Paging File Size (Recommended)	= Mounted Memory Size * 1.5
Dump file Size	= Mounted Memory Size + 1MB
Application Size	= Required Size

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- The maximum paging file size which can be set on one partition is 4095MB. If the above paging file size exceeds 4095MB, specify 4095MB for the paging file size.
- The maximum dump file size for the system with more than 2GB memory mounted is '2048MB + 12MB'.
- If you install any application program or the like, add necessary space to the partition to install these programs.

For example, if the mounted memory size is 512MB, the partition size will be calculated by the above formula as follows:

3500MB + (512MB * 1.5) + (512MB + 12MB) + Application Size
= 4792MB + Application Size

Dividing into the partition of the recommended size into multiple disks as written below will solve problem that it cannot be reserved in one disk.

1. Set the "Size required for installation + Paging file size".
2. See Chapter 5 and set that debugging information (equivalent to the dump file size) is to be written to a separate disk.

   (If the disk does not have enough free space to enable the dump file size to be written, then after installing the system using the "Size required for installation + Paging file size", install an additional new disk.)

Setup Procedure

The following describes the procedure of installing Windows Server 2003 x64 Editions/Windows Server 2003 with local installation.

> **IMPORTANT:** Before starting the setup, always see the notes described earlier in this chapter. The partition creation and the installation to dynamic disks are described.

Items Required for Local Installation

Before starting the job, prepare the following items including disks and manuals:

- DVD-ROM drive
- Floppy disk drive
- NEC EXPRESSBUILDER DVD
- For Windows Server 2008
  - Microsoft Windows Server 2008 Standard (DVD-ROM)
  - Microsoft Windows Server 2008 Enterprise (DVD-ROM)
- For Windows Server 2003 R2 x64 Editions
  - Microsoft Windows Server 2003 R2 Standard x64 Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Standard x64 Edition DISC 2 (CD-ROM)
  - Microsoft Windows Server 2003 R2 Enterprise x64 Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Enterprise x64 Edition DISC 2 (CD-ROM)
  - Windows Server 2003 x64 Edition OEM-DISK
  - Windows Server 2003 x64 Edition Service Pack 2 (CD-ROM)
- For Windows Server 2003 R2
  - Microsoft Windows Server 2003 R2 Standard Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Standard Edition DISC 2 (CD-ROM)
  - Microsoft Windows Server 2003 R2 Enterprise Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 (CD-ROM)
  - Windows Server 2003 OEM-DISK
  - Windows Server 2003 Service Pack 2 (CD-ROM)
- First Step Guide
- User's Guide (this manual)

Creating "Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER"

Before installing, create Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER.

> **NOTE:** If you have already "Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER" for NEC Express5800 Server which you are going to install Windows Server 2003 x64 Editions, you do not need to create it again.

You can create Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER with the following two procedures.

- Create from the menu which appears when running NEC Express5800 Server with NEC EXPRESSBUILDER.

  If you have only NEC Express5800 Server to create Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER, use this procedure.

  If Windows Server 2003 can be operated on NEC Express5800 Server, you can use the other procedure described later.

  Follow the steps below.

1. Prepare one 3.5-inch floppy disk.
2. Turn on your NEC Express5800 Server.
3. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive of the server.
4. Press the RESET switch or press **Ctrl**, **Alt** and **Delete** to reboot the server. (You may also turn off and then on again to reboot the server.)

   The system will boot from the DVD-ROM and NEC EXPRESSBUILDER starts.
5. Select [Create the OEM-Disk for Windows] from [Tools Menu] step.
6. Select [Create an Windows Server 2003 x64 Editions OEM-Disk for EXPRESSBUILDER] at [Create OEM-Disk] and click [Perform].
7. Insert a floppy disk into the floppy disk drive according to the instruction on the screen.

   Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER will be created.

   Write-protect and attach a label, then keep it safely.

- Create from [Autorun Menu]

  This menu requires Microsoft Windows XP, Vista or Windows Server 2003(or later).

  You can create Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER from [Autorun Menu], if you have the computer on which the above operating systems operate.

  Follow the steps below.

1. Prepare one 3.5-inch floppy disk.
2. Start the Operating System.
3. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive of the server.

   The Menu will appear.
4. Click [Create drive disk] and select [OEM-Disk for Windows Server 2003 x64 Edition].

   NOTE: You can do the same operation with the menu appeared by the Right-click.

5. Insert the floppy disk into the floppy disk drive according to the message.

   Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER will be created.

   Write-protect and attach a label, then keep it safely.

Creating "Windows Server 2003 OEM-Disk for EXPRESSBUILDER"

Before installing, create Windows Server 2003 OEM-Disk for EXPRESSBUILDER.

> **NOTE:** If you have already "Windows Server 2003 OEM-Disk for EXPRESSBUILDER" for NEC Express5800 Server which you are going to install Windows Server 2003, you do not need to create it again.

You can create Windows Server 2003 OEM-Disk for EXPRESSBUILDER with the following two procedures.

- Create from the menu which appears when running NEC Express5800 Server with NEC EXPRESSBUILDER.

  If you have only NEC Express5800 Server to create Windows Server 2003 OEM-Disk for EXPRESSBUILDER, use this procedure.

  If Windows Server 2003 or Windows can be operated on NEC Express5800 Server, you can use the other procedure described later.

  Follow the steps below.

1. Prepare one 3.5-inch floppy disk.
2. Turn on your NEC Express5800 Server.
3. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive of the server.
4. Press the RESET switch or press **Ctrl**, **Alt** and **Delete** to reboot the server. (You may also turn off and then on again to reboot the server.)

   The system will boot from the DVD-ROM and NEC EXPRESSBUILDER starts.
5. Select [Create the OEM-DISK for Windows] from [Tools Menu] step.
6. Select [Create an Windows Server 2003 OEM-Disk for EXPRESSBUILDER] at [Create OEM-Disk] and click [Perform].
7. Insert a floppy disk into the floppy disk drive according to the instruction on the screen.

   Windows Server 2003 OEM-Disk for EXPRESSBUILDER will be created.

   Write-protect and attach a label, then keep it safely.

■ Create from [Autorun Menu]

This menu requires Microsoft Windows XP, Vista or Windows Server 2003 (or later).

You can create Windows Server 2003 OEM-Disk for EXPRESSBUILDER from [Autorun Menu], if you have the computer on which the above operating systems operate.

Follow the steps below.

1. Prepare one 3.5-inch floppy disk.
2. Start the Operating System.
3. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive of the server.

   The Menu will appear.
4. Click [Create drive disk] and select [OEM-Disk for Windows Server 2003].

   NOTE: You can do the same operation with the menu appeared by the Right-click.
5. Insert the floppy disk into the floppy disk drive according to the message.

   Windows Server 2003 OEM-Disk for EXPRESSBUILDER will be created.

   Write-protect and attach a label, then keep it safely.

Installation of Windows Server 2008

Install Windows Server 2008 in the following procedure.

1. Turn on your system.

   IMPORTANT: To install Windows Server 2008, you may need to update BIOS. To check if your system needs a BIOS update, go to: http://www.nec.com/express/.

2. Insert the Windows Server 2008 DVD-ROM into your DVD-ROM drive.

3. Restart the system.
   To restart the system, press **Ctrl** + **Alt** + **Del** or turn off the system once, and then turn it on again.

   IMPORTANT: When prompted to [press any key to boot from CD or DVD], press **Enter** while the message is displayed. If the Windows installation screen (shown in step 4) does not appear, turn off the system, and then turn it on again.

   The DVD-ROM starts. A message "Windows is loading files …" appears.

4. Select a language and other options from the drop-down lists, and then click [Next].

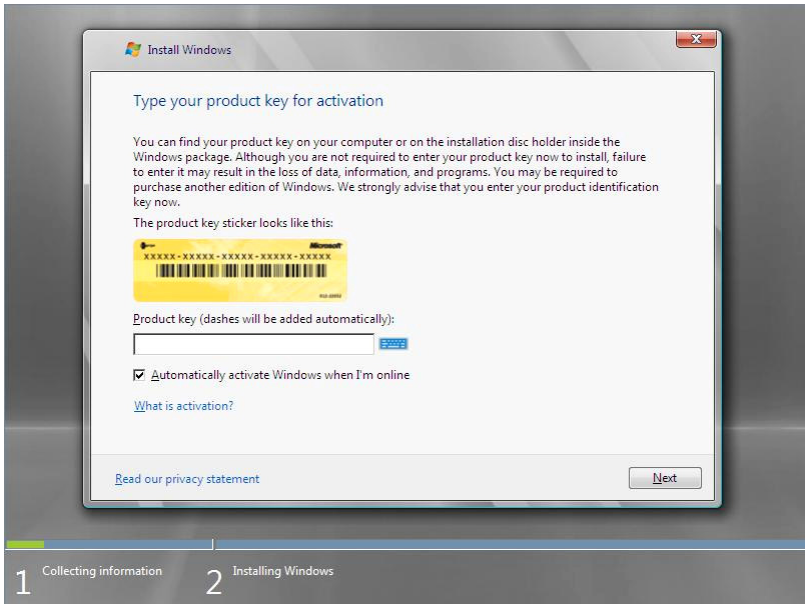
Install Windows
Windows Server 2008
Language to install: English
Time and currency format: English (United States)
Keyboard or input method: US
Enter your language and other preferences and click "Next" to continue.
Copyright © 2007 Microsoft Corporation. All rights reserved.
Next

5. Click the [Install now] button.

The installation starts.

Install Windows
Windows Server 2008
Install now
What to know before installing Windows
Repair your computer
Copyright © 2007 Microsoft Corporation. All rights reserved.

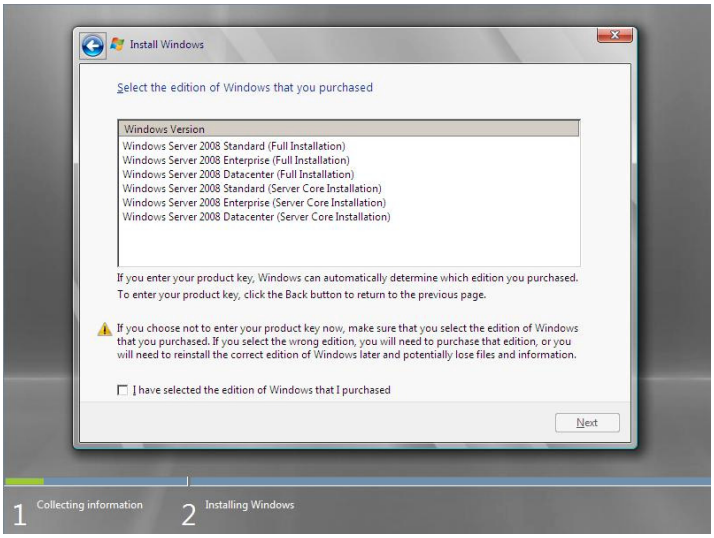
6. Enter your product key, and then click [Next].


Install Windows
Type your product key for activation
You can find your product key on your computer or on the installation disc holder inside the Windows package. Although you are not required to enter your product key now to install, failure to enter it may result in the loss of data, information, and programs. You may be required to purchase another edition of Windows. We strongly advise that you enter your product identification key now.
The product key sticker looks like this:
XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
Product key (dashes will be added automatically):
Automatically activate Windows when I'm online
What is activation?
Read our privacy statement
Next
1 Collecting information
2 Installing Windows

7. Select the edition of the Windows operating system that you purchased.

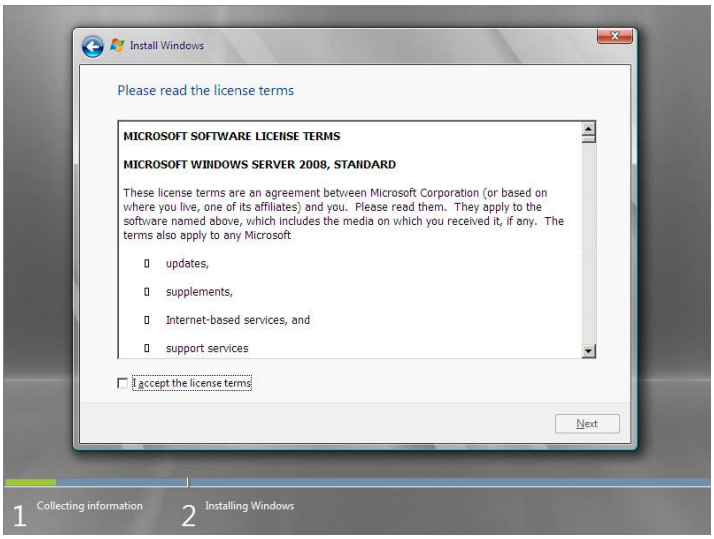
Select [I have selected the edition of Windows that I purchased], and then click [Next].

You will see only possible editions that have been determined by Windows based on the key you entered in step 6.


Install Windows
Select the edition of Windows that you purchased
Windows Version
Windows Server 2008 Standard (Full Installation)
Windows Server 2008 Enterprise (Full Installation)
Windows Server 2008 Datacenter (Full Installation)
Windows Server 2008 Standard (Server Core Installation)
Windows Server 2008 Enterprise (Server Core Installation)
Windows Server 2008 Datacenter (Server Core Installation)
If you enter your product key, Windows can automatically determine which edition you purchased.
To enter your product key, click the Back button to return to the previous page.
If you choose not to enter your product key now, make sure that you select the edition of Windows that you purchased. If you select the wrong edition, you will need to purchase that edition, or you will need to reinstall the correct edition of Windows later and potentially lose files and information.
I have selected the edition of Windows that I purchased
Next
1 Collecting information
2 Installing Windows

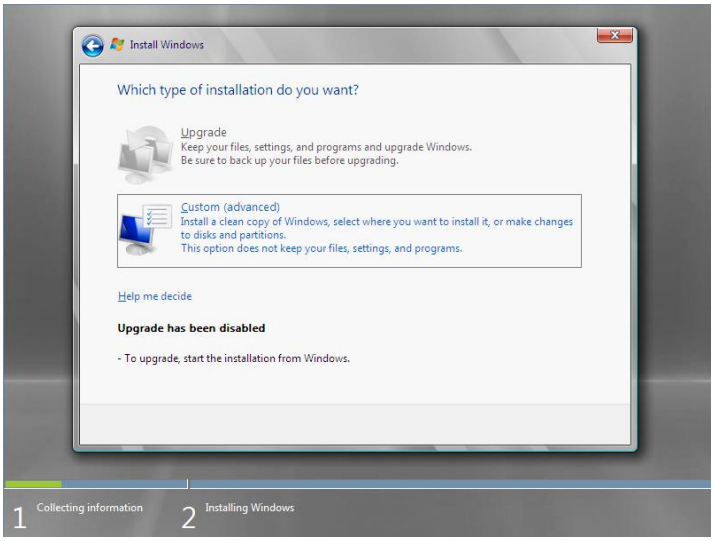
NOTE: The Windows versions listed on the screen vary depending on the Windows Server 2008 DVD-ROM you are using.

8. Read the license terms carefully. If you agree, select [I accept the license terms], and then click [Next].

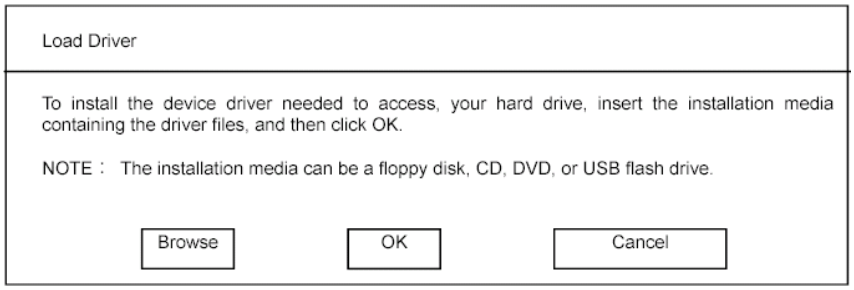

Install Windows
Please read the license terms
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT WINDOWS SERVER 2008, STANDARD
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft
updates,
supplements,
Internet-based services, and
support services
I accept the license terms
Next
1 Collecting information
2 Installing Windows

9. Select the type of installation you want.

[Custom (advanced)] is selected below.


Install Windows
Which type of installation do you want?
Upgrade
Keep your files, settings, and programs and upgrade Windows.
Be sure to back up your files before upgrading.
Custom (advanced)
Install a clean copy of Windows, select where you want to install it, or make changes to disks and partitions.
This option does not keep your files, settings, and programs.
Help me decide
Upgrade has been disabled
- To upgrade, start the installation from Windows.
1 Collecting information
2 Installing Windows

10. You will be asked, "Where do you want to install Windows?".
Select [Load Driver], and then click [Browse].


Load Driver
To install the device driver needed to access, your hard drive, insert the installation media containing the driver files, and then click OK.
NOTE： The installation media can be a floppy disk, CD, DVD, or USB flash drive.
Browse
OK
Cancel

The folder reference dialog box appears. Select a path to the folder in the NEC EXPRESSBUILDER DVD, and then click [OK].

Windows Server 2008 64-bit (x64) Edition:

<drive letter>:\002\win\winnt\oemfd\ws2008x64\fd1\megasas

Windows Server 2008 32-bit (x86) Edition:

<drive letter>: \002\win\winnt\oemfd\ws2008\fd1\megasas

After you select the path, a list of drivers is displayed. Select the following driver, and then click [OK]. Go to step 11.

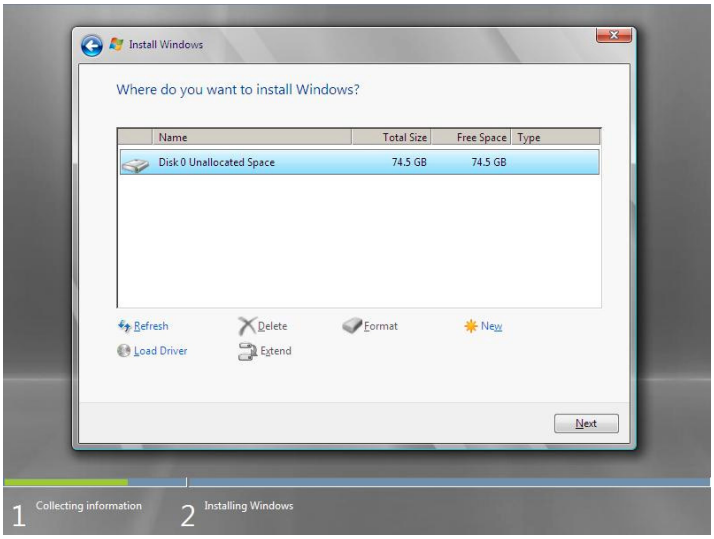
11. Select the disk where a partition will be created, and then click [Drive Option].

IMPORTANT: If the partition has already been created, go to step 14.

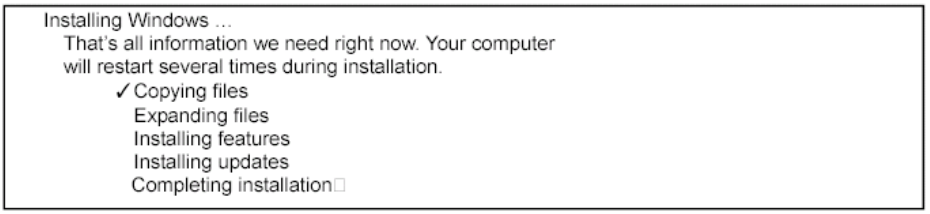
12. Click [New], enter a partition size, and then click [Apply].

13. Select the partition created in step 12, and then click [Format].

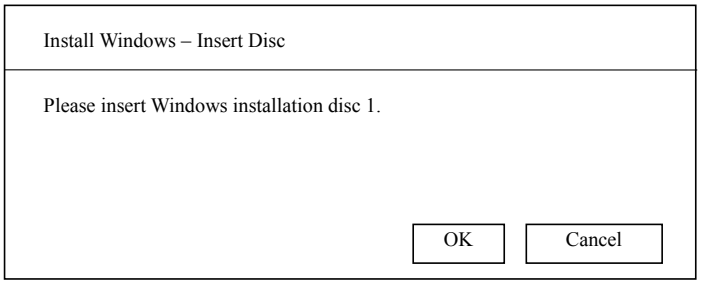
14. Select the partition created, and then click [Next].



When the following message appears, the installation starts automatically.


Installing Windows ...
That's all information we need right now. Your computer will restart several times during installation.
✓ Copying files
Expanding files
Installing features
Installing updates
Completing installation

NOTE: If the disk drive contains NEC EXPRESSBUILDER DVD, you will be prompted to replace a media with that for OS installation. Insert the install media according to the on-screen message.

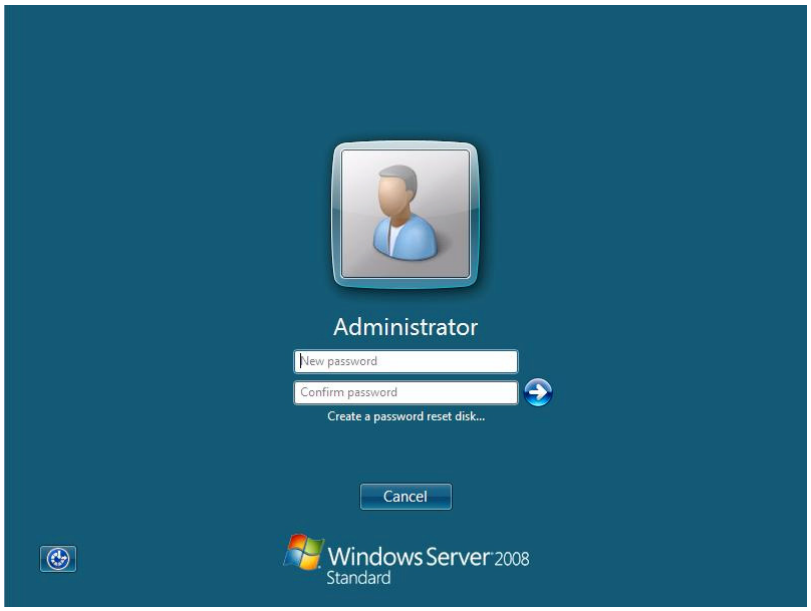


15. Log on to the system. The steps vary depending on the edition you selected in step 7.

If you have selected a full installation

1. After a full installation of Windows Server 2008 is completed, the following dialog box will prompt you to set or change the password before you log on. Click [OK].

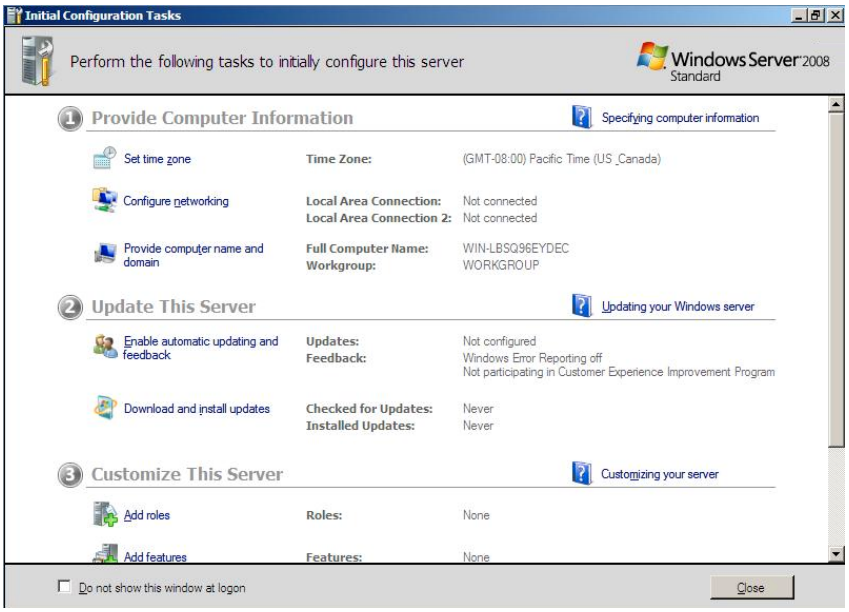
2. Change the password, and then click the [Next] button.



NOTE: The Windows Server 2008 password must combine uppercase letters, lowercase letters, and numbers.

3. When the following message appears, click [OK] to log on.

4. On the [Initial Configuration Tasks] window, enter user information.

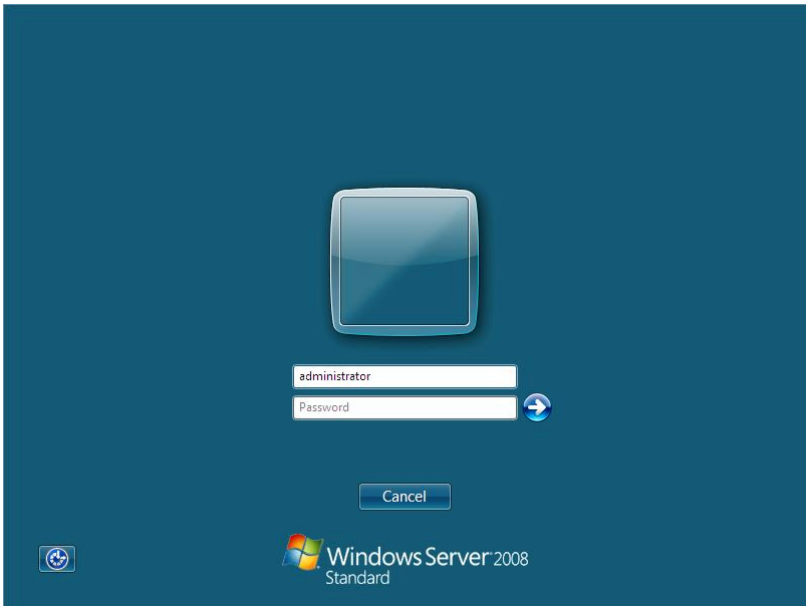


If you have selected a Server Core installation

1. After a Server Core installation of Windows Server 2008 is completed, press **Ctrl** + **Alt** + **Del**.

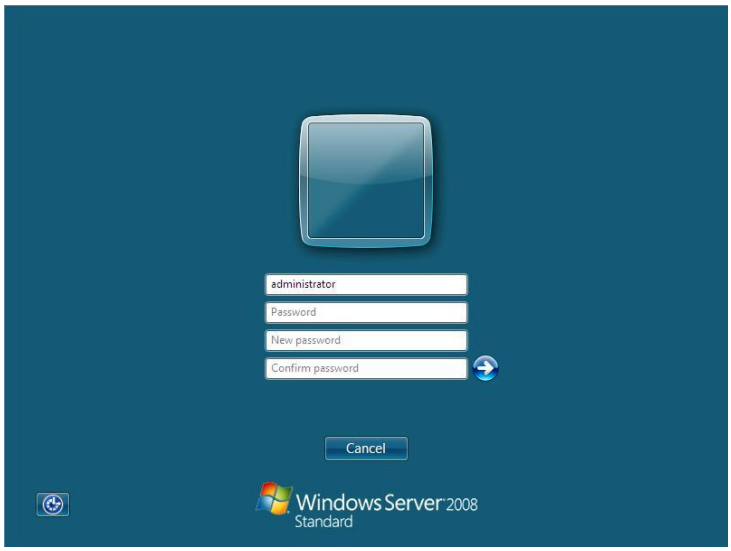
2. Select [Other User].

3. Log on to the system as an administrator.
   You need not enter your password in this dialog box. Click the button.



4. Before you log on, you will be prompted to change the password. Click [OK].

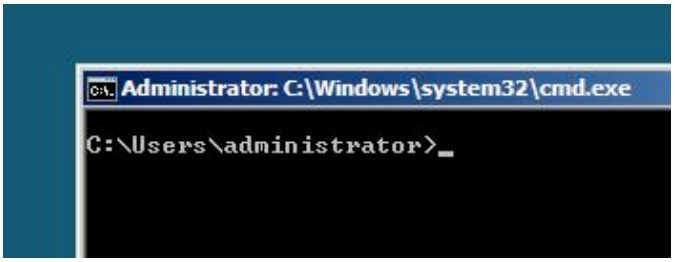
5. Change the password, and then click the [Next] button.



NOTE: The Windows Server 2008 password must combine uppercase letters, lowercase letters, and numbers.

6. When the following message appears, click [OK].

7. At the command prompt, enter user information.



NOTE: For more detailed procedure, see the "Microsoft Windows Server 2008 Step-By-Step Guide."

After installations is completed, be sure to execute the tasks described in "Setup of Device Driver (Normally Install in Server)" and "Updating the System" of this chapter.

Procedure for License Authentication

Product Key used in the procedure for license authentication should be matched with the COA label in which the product key contained in Windows Server 2008 is written.

NOTES:

- Execute the activation within 30 days. System may be locked after 30 days is passed.
- COA label may be attached to the main unit.

Installing and Setting Device Drivers

Follow these steps to install and configure the device drivers.

Installing Fibre Channel Controller Driver (N8403-018)

If you utilize Fibre Channel controller driver (N8403-018), update your system with NEC EXPRESSBUILDER DVD attached to your system.

The Fibre Channel controller driver will be installed automatically.

Installation of Windows Server 2003 R2 x64 Editions

This section explains how to perform a clean installation of Windows Server 2003 x64 Editions.

1. Turn on the power to start the CPU blade.
2. Insert the Windows Server 2003 x64 Edition CD-ROM into the USB DVD-ROM drive connected to the CPU blade.
3. Press **Ctrl** + **Alt** + **Delete** to reset the system.

   After a bootable operating system has been installed on the hard disk drive, press **Enter** while the message "Press any key to boot from CD..." is displayed at the top of the screen.

   If no bootable operating system exists on the hard disk drive, this step is unnecessary.

   The Windows Server 2003 x64 Editions setup screen will appear.

   If the screen is not displayed, **Enter** was not pressed properly.

   Begin after turning on the system power again.
4. Press **F6** in a few seconds when the window is in either of the following states.
   - "Setup is inspecting your computer's hardware configuration ..." or "Press F6 if you need to install a third party SCSI or RAID driver..." is displayed.
   - A screen with a solid blue background is displayed.

   IMPORTANT: There is no visible indication on screen when **F6** has been pressed
5. When the following message is displayed, press **S**.

   ```
   Setup could not determine the type of one or more mass storage
   devices installed in your system, or you have chosen to
   manually specify an adapter. Currently, Setup will load
   support for the following mass storage devices.
   ```

   The following message appears.

   ```
   Please insert the disk labeled
   manufacturer-supplied hardware support disk
   into Drive A:
   * Press ENTER when ready.
   ```
6. Insert Windows Server 2003 x64 Edition OEM-Disk for EXPRESSBUILDER into the floppy disk drive and press **Enter**.

   A list of the drivers for SCSI device is displayed.
7. Select the [LSI Logic MegaRAID SAS RAID Controller Driver (Server 2003 for x64)] and press **Enter**.

   If the message appears, press **S**.

   Then, it returns to the screen of step 5.

8. If the optional board is installed, select the proper SCSI Adapter and press **Enter**.

   – Emulex LPX000 PCI Fibre Channel HBA
   (When Fibre Channel controller(N8403-018) is used.)

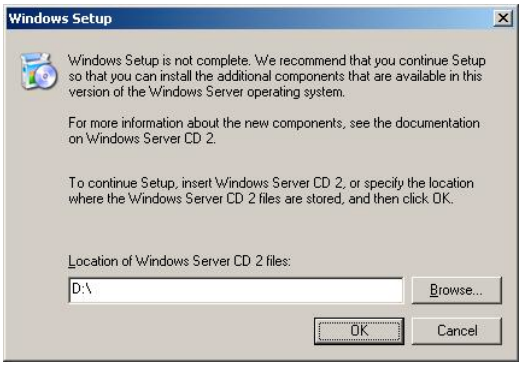
   If the following message appears, press **S**.

   ```
   The driver you provided seems to be newer than the Windows default driver.
   Windows already has a driver that you can use for
   "Emulex LPX000 PCI Fibre Channel HBA"
   Unless the device manufacture prefers that you use the driver
   on the floppy disk, you should use the driver in Windows.
   ```

9. When the following message is shown, press **Enter** to start "Welcome to Setup".

10. When the installation of Windows Server 2003 R2 x64 Edition has finished, the system reboots automatically.

11. The [Windows Setup] screen will be displayed after logged on to the system.


Windows Setup
Windows Setup is not complete. We recommend that you continue Setup so that you can install the additional components that are available in this version of the Windows Server operating system.
For more information about the new components, see the documentation on Windows Server CD 2.
To continue Setup, insert Windows Server CD 2, or specify the location where the Windows Server CD 2 files are stored, and then click OK.
Location of Windows Server CD 2 files:
D:\
Browse...
OK
Cancel

IMPORTANT: In this case, the [Windows Setup] screen may not be displayed.
Be sure to install Microsoft Windows Server 2003 R2 x64 Edition DISC 2 according to the following procedures.

12. Insert Microsoft Windows Server 2003 R2 x64 Edition DISC 2 CD-ROM into the USB DVD-ROM drive.

13. When the installation has completed, remove Microsoft Windows Server 2003 Edition DISC 2 CD-ROM from the USB DVD-ROM drive, and restart the system.

    After installation is completed, be sure to execute the tasks described in "Setup of Device Driver (Normally Installed in Server)" and "Updating the System" of this chapter.

Procedure for License Authentication

Product Key used in the procedure for license authentication should be matched with the COA label in which the product key contained in Windows Server 2003 x64 Editions is written.

NOTES:

- Execute the activation within 30 days.
  System may be locked after 30 days is passed.
- COA label may be attached to the main unit.

Installing and Setting Device Drivers

Follow these steps to install and configure the device drivers.

Installing Fibre Channel Controller Driver (N8403-018)

If you utilize Fibre Channel controller driver (N8403-018), update your system with NEC EXPRESSBUILDER DVD attached to your system.

The Fibre Channel controller driver will be installed automatically.

Installation of Windows Server 2003 R2

This section explains how to perform a clean installation of Windows Server 2003.

1. Turn on the power to start the CPU blade.
2. Insert the Windows Server 2003 CD-ROM into the USB DVD-ROM drive.
3. Press **Ctrl** + **Alt** + **Delete** to reset the system.

   After a bootable operating system has been installed on the hard disk drive, press **Enter** while the message "Press any key to boot from CD..." is displayed at the top of the screen.

   If no bootable operating system exists on the hard disk drive, this step is unnecessary.

   The Windows Server 2003 setup screen will appear.

   If the screen is not displayed, **Enter** was not pressed properly.

   Begin after turning on the system power again.
4. Press **F6** in a few seconds when the window is in either of the following states.
   - "Setup is inspecting your computer's hardware configuration ..." or "Press F6 if you need to install a third party SCSI or RAID driver..." is displayed.
   - A screen with a solid blue background is displayed.

   IMPORTANT: There is no visible indication on screen when **F6** has been pressed.
5. When the following message is displayed, press **S**.

   ```
   Setup could not determine the type of one or more mass storage
   devices installed in your system, or you have chosen to
   manually specify an adapter. Currently, Setup will load
   support for the following mass storage devices.
   ```

   The following message appears.

   ```
   Please insert the disk labeled
   manufacturer-supplied hardware support disk
   into Drive A:
   * Press ENTER when ready.
   ```
6. Insert Windows Server 2003 OEM-Disk for EXPRESSBUILDER into the floppy disk drive and press **Enter**. A list of the drivers for SCSI device is displayed.
7. Select the [LSI Logic MegaRAID SAS RAID Controller Driver (Server 2003 32-bit)] and press **Enter**.

   If the message appears, press **S**.

   Then, it returns to the screen of step 5.
8. If the optional board is installed, press **S** again.

9. Insert Windows Server 2003 OEM-Disk for EXPRESSBUILDER into the floppy disk drive and press **Enter**.

A list of the drivers for SCSI device is displayed.

10. If the optional board is installed, select the proper SCSI Adapter and press **Enter**.

– Emulex LPX000 PCI Fibre Channel HBA
(When Fibre Channel controller (N8403-018) is used.)

11. When the following message is shown, press **Enter** to start "Welcome to Setup".

12. When the installation of Windows Server 2003 has finished, the system reboots automatically.

13. When Windows Server 2003 R2 has been installed, the [Windows Setup] screen will be displayed after logged on to the system.

Windows Setup
Windows Setup is not complete. We recommend that you continue Setup so that you can install the additional components that are available in this version of the Windows Server operating system.
For more information about the new components, see the documentation on Windows Server CD 2.
To continue Setup, insert Windows Server CD 2, or specify the location where the Windows Server CD 2 files are stored, and then click OK.
Location of Windows Server CD 2 files:
D:\
Browse...
OK
Cancel

IMPORTANT: In this case, the [Windows Setup] screen may not be displayed.
Be sure to install Microsoft Windows Server 2003 R2 DISC 2 according to the following procedures.

14. Insert Microsoft Windows Server 2003 R2 DISC 2 CD-ROM into the USB DVD-ROM drive.

Confirm the parameters and click [OK].

15. When the installation has completed, remove Microsoft Windows Server 2003 R2 DISC 2 CD-ROM from the DVD-ROM drive, and restart the system.

16. After installation is completed, be sure to execute the tasks described in "Setup of Device Driver (Normally Installed in Server)" and "Updating the System" of this chapter.

Procedure for License Authentication

Product Key used in the procedure for license authentication should be matched with the COA label in which the product key contained in Windows Server 2003 is written.

> **NOTE:** Execute the activation within 30 days. System may be locked after 30 days is passed.

Installing and Setting Device Drivers

Follow these steps to install and configure the device drivers.

Installing Fibre Channel Controller Driver (N8403-018)

If you utilize Fibre Channel controller driver (N8403-018), update your system with NEC EXPRESSBUILDER DVD attached to your system.

The Fibre Channel controller driver will be installed automatically.

REMOTE DESKTOP FOR MANAGEMENT

This section describes the necessary setting of the Remote Desktop for Management to use Windows Server 2008, Windows Server 2003 x64 Editions, or Windows Server 2003.

IMPORTANT: The license for Sever Client Access with fee is not needed to use the Remote Desktop for Management.
The Remote Desktop for Management enables to have two connections or less simultaneously.

Windows Server 2008

Full Installation

The setting process is as follows.

1. Click [Start] Menu and point [Control Panel] and click [System].
2. Click [Remote Setting].
3. Check [Allow connections from computers running any version of Remote Desktop] in the [Remote desktop] section, and click [OK].

Server Core Installation

Refer to the following technical information provided by Microsoft Corporation.

How to enable Remote Desktop on Windows 2008 Server Core

NOTE: Visit online support of Microsoft Corporation and obtain an information by entering a search keyword [KB555964].

Windows Server 2003 x64 Editions

The setting process is as follows.

IMPORTANT: Set password for the Administrator account in order to use the Remote Desktop for Management.

1. Click [Start] Menu and point [Control Panel] and click [System].
2. Click [Remote] tab and check [Allow users to connect remotely to this computer] in the [Remote desktop] section, and click [OK].

Windows Server 2003

The setting process is as follows.

> **IMPORTANT:** Set password for the Administrator account in order to use the Remote Desktop for Management.

1. Click [Start] Menu and point [Control Panel] and click [System].
2. Click [Remote] tab and check [Allow users to connect remotely to this computer] in the [Remote desktop] section, and click [OK].

SETUP OF DEVICE DRIVER (NORMALLY INSTALLED IN SERVER)

For the installation and setup of each optional device driver, refer to the documentation shipped with the option.

PROSet

NOTES:

- All of the operation that related to Intel® PROSet is must be executed by administrator privileges. Operation by [Remote Desktop Connection] is prohibited.
  Without changing any parameter when opened the properties of adapter teaming, please click the [Cancel] button to close the dialog. Clicking the [OK] button will cause temporary loss of network connectivity.
- It is recommend to add [Network Monitor] at [Adding Services]. [Network Monitor] can monitor the frame (or the packet) that the computer installing [Network Monitor] sends or receives. This tool is valuable when analyzing network trouble. For information on how to install the tool, see the "Setting for Solving Problems" described later in this chapter.

PROSet is a utility that confirms the function of network contained in network driver.

Utilizing PROSet enables the following items:

- Confirm detailed information of the adapter.
- Diagnose loop back test, packet transmission test and so on.
- Setup of teaming.

Configuring several network adapters as one team provides the server a tolerant environment on any trouble and enhances throughput between the switches.

PROSet is necessary to utilize these features.

Follow the procedure below to install PROSet.

When the system is Windows Server 2008 64-bit (x64) Edition / Windows Server 2008 32-bit (x86) Edition

LAN drivers and PROSet are installed automatically by the System Update.

When the system is Windows Server 2003 x64 Editions / Windows Server 2003

1. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive.

   If the autorun menu is displayed, close menu screen.

2. The [Windows Explorer] dialog starts.

   – The procedure in the case of the standard start menu

   Click Start menu and click [Windows Explorer].

   – The procedure in the case of the classic start menu

   Click Start menu, point to [Programs], [Accessories], and click [Windows Explorer].

3. Run "dxsetup.exe" in the following directory.

   – Windows Server 2003 x86 Editions:

   \002\win\winnt\dotnet\dl3\proset\win32

   – Windows Server 2003 x86 Editions:

   \002\win\winnt\w2k3amd\dl3\proset\winx64

   The [Intel® PROSet - InstallShield Wizard] dialog starts.

4. Click [Next].
5. Choose "I accept the terms in the license agreement" and click [Next].
6. Click [Next].
7. Choose "I accept the terms in the license agreement" and click [Next].
8. Click [Install].
9. When [InstallShield Wizard Completed] window is displayed, click [Finished].
10. Remove the NEC EXPRESSBUILDER DVD from the optical disk drive, restart the system.

Graphics Accelerator

Standard graphics accelerator drivers that are mounted will be installed automatically. The following is the procedure when it is necessary to install manually.

> **NOTE:** <Windows Server 2008>
>
> The graphics accelerator driver is supported only on a server running a full installation. Use VGA on a server running a Server Core installation.

1. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive.
2. Click Start menu, point to [Programs], [Accessories] and click [Windows Explorer].
3. Run "install.bat" in the following directory.

   Windows Server 2008 64-bit(x64) Edition:
   <DVD-ROM drive Letter>:\002\win\winnt\ws2008x64\video\install.bat

   Windows Server 2008 32-bit(x86) Edition:
   <DVD-ROM drive Letter>:\002\win\winnt\ws2008\video\install.bat

   Windows Server 2003 x64 Editions:
   <DVD-ROM drive Letter>:\002\win\winnt\w2k3amd\video\install.bat

   Windows Server 2003:
   <DVD-ROM drive Letter>:\002\win\winnt\dotnet\video\install.bat
4. Follow the message to continue the installation.

   If the dialog message "Digital Signature could not been found." appears, select [Yes] to continue.
5. Remove the NEC EXPRESSBUILDER DVD from the DVD-ROM drive, follow the direction on the screen and restart the system.

Fibre Channel Controller Driver

If you utilize Fibre Channel Controller (N8403-018), update your system with NEC EXPRESSBUILDER DVD attached to your system.

The Fibre Channel Controller driver will be installed automatically.

> **NOTE:** This procedure are common to Windows Server 2003 x64 Editions and Windows Server 2003 .

Optional Network Board Driver

If you want to utilize optional Network Board (N8403-017/020), install the driver stored in NEC EXPRESSBUILDER DVD.

In case of utilizing (N8403-017/020) for Windows Server 2008 64-bit (x64) Edition / Windows Server 2008 32-bit (x86) Edition

LAN drivers and PROSet are installed automatically by the System Update.

In case of utilizing (N8403-017/020) for Windows Server 2003 x64 Editions

"DVD-ROM Drive Letter:\002\win\WINNT\W2K3AMD\DL3\PRO1000\WINX64"

In case of utilizing (N8403-017/020) for Windows Server 2003

"DVD-ROM Drive Letter:\002\win\WINNT\DOTNET\DL3\PRO1000\WIN32"

If the procedure of installation is not clear, refer to the installation procedure described in the section "Installation of the Optional Network Board Driver".

Installation of the Optional Network Board Driver

When the system is Windows Server 2008 64-bit(x64) Edition / Windows Server 2008 32-bit(x86) Edition

LAN drivers and PROSet are installed automatically by the System Update.

When the system is Windows Server 2003 x64 Editions / Windows Server 2003

1. Start Device Manager.
2. Click [Network adapters] and double-click [(Network Adapter Name)].

   [(Network Adapter Name) Properties] appears.

   NOTE: [(Intel(R) PRO/1000...)] is the name of On-Board adapter. All other names show the Optional Network Board.

3. Click [Driver] tab and click [Update Driver...].

   [Hardware Update Wizard] appears.
4. Select the [Install from a list or specific location (Advanced)] radio button and click [Next].
5. Select the [Search for the best driver in these locations] radio button and check off the

   [Search removable media (floppy, CD-ROM...)] check box.
6. Check the [Include this location in the search] check box and when using [(N8403-017/020)], specify:

   In case of utilizing (N8403-017/020) for Windows Server 2003 x64 Editions

   "DVD-ROM Drive Letter:\002\win\WINNT\W2K3AMD\DL3\PRO1000\WINX64"

   In case of utilizing (N8403-017/020) for Windows Server 2003

   "DVD-ROM Drive Letter:\002\win\WINNT\DOTNET\DL3\PRO1000\WIN32"

   Then click [Next].
7. Click [Finish].

Setup of Adapter Fault Tolerance (AFT)/Adaptive Load Balancing (ALB)

Adapter Fault Tolerance (AFT) is a feature that creates a group containing more than one adapter.

With this feature, when the working adapter gets any problem, the process on it is automatically transferred to the other adapter in the group.

Adaptive Load Balancing (ALB) is a feature that creates a group containing more than one adapter and enhances the throughput by operating packet transmission from the server by all the adapters.

This feature includes AFT feature.

IMPORTANT:

- All the adapters specified as a group of Adapter Teaming must exist on the same LAN. If they are connected to the separate switches, they will not work normally.
- The adapters specified as a group of Adaptive Load Balancing (ALB) can be connected to only Switching Hub.
- When exchange the mother board or option network card, make sure to remove the adapter team before exchanges and recreate the adapter team after exchange complete.
- Verify that the switch fully supports the IEEE 802.3ad standard before using IEEE802.3ad Link Aggregation (DLA).

Setup Teaming

When the system is Windows Server 2008 64-bit (x64) Editions / 2008 32-bit (x86) Editions

IMPORTANT:

- Teaming is not supported with Windows Server Core.
- AFT/ALB setting must be done after System Update completed.

1. Open the [Device Manager].
2. Open [Network adapters] → [Intel(R)xxx] properties.
3. Click [Teaming] tab and check the [Team this adapter with other adapters] check box.
   Click [New Team].
4. Fill the name of the team in [Specify a name for the team] and click [Next].
5. Include the adapter to the team and click [next].

   IMPORTANT: Do not include the member adapter over than two.

6. Select a team type ([Adapter Fault Tolerance]/[Adaptive Load Balancing]).
   Click [next].
7. Click [Finish].
8. Click [TEAM:"Team name"] from [Device manager]->[Network adapters] to modify the team.
   Click [Settings] tab and click [Modify Team] button.
9. Refer to the following procedure to set the team member adapter priority status.
   – Set Primary
     Point the adapter and click [Set Primary] button.
   – Set Secondary
     Point the adapter and click [Set Secondary] button.

   NOTE: Adapter priority config can be confirmed by the following procedure
   1. Click [TEAM:"Team name"] from [Device manager]->[Network adapters].
   2. Click [Settings] and confirm Adapters in team list.

10. Click [Test Switch]->[Run test] to confirm the adapter team is properly setup.
    Confirm the result in [Test results]
11. Reboot the system.

When the system is Windows Server 2003 x64 Editions / Windows Server 2003

IMPORTANT: AFT/ALB setting must be do after System Update completed.

1. Open the [Device Manager].
2. Open [Network adapters]->[Intel(R)xxx] properties.
3. Click [Teaming] tab and check the [Team this adapter with other adapters] check box.

   Click [New Team].
4. Fill the name of the team in [Specify a name for the team] and click [Next].
5. Include the adapter to the team and click [next].
6. Select a team type([Adapter Fault Tolerance]/[Adaptive Load Balancing]).

   Click [next].
7. Click [Finish].
8. Click [TEAM:"Team name"] from [Device manager]->[Network adapters] to modify the team.

   Click [Settings] tab and click [Modify Team] button.
9. Refer to the following procedure to set the team member adapter priority status.
   - Set Primary

     Point the adapter and click [Set Primary] button.
   - Set Secondary

     Point the adapter and click [Set Secondary] button.

   NOTE: Adapter priority config can be confirmed by the following procedure

   1. Click [TEAM:"Team name"] from [Device manager]->[Network adapters].
   2. Click [Settings] and confirm Adapters in team list.
10. Click [Test Switch]->[Run test] to confirm the adapter team is properly setup.

    Confirm the result in [Test results]
11. Reboot the system.

Remove Team

This procedure is common in Windows Server 2003 and Windows Server 2008.

1. Open the [Device Manager].
2. Click [Network adapters], and open [TEAM:"Team name"] properties.
3. Click [Setting] tab.
4. Click [Remove Team] button.
5. Click [Yes] to the message.
6. Confirm [TEAM:"Team name"] adapter in not existing in [Network adapters] tree and reboot the system.

SETTING WOL

Refer to the following procedure to enable WOL.

When the system is Windows Server 2008 64-bit (x64) Edition / Windows Server 2008 32-bit (x86) Edition

1. Start Device Manager.
2. Point to [Network adapters] and double click [Intel(R)xxxx] to open the adapter [Properties].
3. Click [Power management] tab and check in the following items check boxes.
   - Wake On Directed Packet
   - Wake On Magic Packet
   - Wake on Magic Packet from power off state

   NOTE: "Wake On Directed Packet" and "Wake On Magic Packet" is already checked in default set.
4. Click [OK].
5. Reboot the system.

When the system is Windows Server 2003 x64 Editions / Windows Server 2003

[When PROSet is not installed]

1. Start Device Manager.
2. Point to [Network adapters] and double click [Intel(R)xxxx] to open the adapter [Properties].
3. Click [Power management] tab and check in the following items check boxes.
   - Allow the computer to turn off this device to save power.
   - Allow this device to bring the computer out of standby.
4. Click [Advanced] tab and point to [Enable PME].
5. Set the "Enable" in [Value].
6. Click [OK].
7. Reboot the system.

[When PROSet is installed]

1. Start Device Manager.
2. Point to [Network adapters] and double click [Intel(R)xxxx] to open the adapter [Properties].
3. Click [Power management] tab and check in the following items check boxes.
   - Wake On Directed Packet
   - Wake On Magic Packet
   - Wake on Magic Packet from power off state

   NOTE: "Wake On Directed Packet" and "Wake On Magic Packet" is already checked in default set.
4. Click [OK].
5. Reboot the system.

RE-INSTALLATION OF THE NETWORK DRIVER

When the system is Windows Server 2008 64-bit (x64) Edition / Windows Server 2008 32-bit (x86) Edition

Please run the "System Update" to re-install the network driver.

When the system is Windows Server 2003 x64 Editions

After installing OS and deleting the network drivers, if you want to re-install the network drivers, follow the procedure below.

1. Restart OS and logon to your system.
2. [Upgrade Device Driver Wizard] dialog box appears.

   Click [Next].
3. Confirm that the [Search for a suitable driver for my device (recommended)] radio button is selected and click [Next].
4. Select the [Specify a location] check box and deselect other check boxes.

   Click [Next].
5. Other [Upgrade Device Driver Wizard] dialog box opens.

   When using [Intel® PRO/1000 EB Backplane Connection with I/O Acceleration] / [Intel® PRO/1000 EB Backplane Connection with I/O Acceleration#2], specify [DVD-ROM drive letter:\002\win\WINNT\W2K3AMD\DL3\PRO1000\WINX64].

   Then click [OK].
6. Click [Next].
7. Click [Finished].

   Other [Upgrade Device Driver Wizard] dialog box appears.

When the system is Windows Server 2003

After installing OS and deleting the network drivers, if you want to re-install the network drivers, follow the procedure below.

1. Restart OS and logon to your system.
2. [Upgrade Device Driver Wizard] dialog box appears.

   Click [Next].
3. Confirm that the [Search for a suitable driver for my device (recommended)] radio button is selected and click [Next].
4. Select the [Specify a location] check box and deselect other check boxes.

   Click [Next].
5. Other [Upgrade Device Driver Wizard] dialog box opens.

   When using [IntelR PRO/1000 EB Backplane Connection with I/O Acceleration] / [Intel(R) PRO/1000 EB Backplane Connection with I/O Acceleration#2], specify [DVD-ROM drive letter:\002\win\WINNT\DOTNET\DL3\PRO1000\WIN32].

   Then click [OK].

   After installing OS and deleting the network drivers, if you want to re-install the network drivers,
6. Click [Next].
7. Click [Finished].

   Other [Upgrade Device Driver Wizard] dialog box appears.

SETTING FOR SOLVING PROBLEMS

Setup the following issue in advance so that your computer can recover from any trouble precisely and as soon as possible when it should occur.

Memory Dump (Debug Information) - Windows Server 2008 -

This section describes the procedures for collecting memory dump (debug information) in the server.

IMPORTANT: Cautions for the Memory Dump

- The staff of maintenance service representative is in charge of collecting memory dump. Customers need only to specify the memory dump.
- If any trouble occur after specifying the process below, the message to inform that the system is in short of virtual memory may appear, but continue to start the system. If you restart the system in such case, memory dump may not be stored correctly.

Follow the procedure below to specify.

1. Select [Control Panel] and click [System].

   The [System] dialog box appears.

2. Click [Advanced system settings].

   The [System Properties] dialog box appears.

3. Select [Advanced] tab.

   Click [Settings] on the [Startup and Recovery] group box.

4. Modify [Dump file:] in the [Write debugging information] group box.

   e.g. Write the debug information in D drive with the file name "MEMORY.DMP".

   D:\MEMORY.DMP

IMPORTANT:

Windows Server 2008 64-bit (x64)Edition

- To specify "Complete Memory Dump" to write the debug information is recommended. If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 300MB".
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

Windows Server 2008 32-bit (x86)Edition

- To specify "Complete Memory Dump" to write the debug information is recommended. If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 300MB"(In case the memory capacity is more than 2GB, a free area of "2048+300MB" or more).
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

5. Click [Settings] on the [Performance] group box.

The [Performance Options] window appears.

6. Click [Advanced] tab on the [Performance Options] window.

7. Click [Change] on the [Virtual memory] group box.

8. Uncheck the [Automatically manage paging file size for all drives] box, and check [Custom size].

9. On the [Paging file size for each drive] box, specify as follows:

– A value larger than the recommended size shown in [Total paging file size for all drives] for [Initial size]

– A value larger than the [Initial size] for [Maximum size]

Then click [Set].

IMPORTANT:

- The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
- For more information on "Recommended" value, see "About the System Partition Size" described earlier.
- In case the memory is expanded, re-specify the paging file to suit the new memory size.

10. Click [OK].

The message to restart the system may appear according to the modified specification.

In such case, follow the message to restart the system.

Memory Dump (Debug Information) - Windows Server 2003 -

This section describes the procedures for collecting memory dump (debug information) in the server.

IMPORTANT: Cautions for the Memory Dump

- The staff of maintenance service representative is in charge of collecting memory dump. Customers need only to specify the memory dump.
- If any trouble occur after specifying the process below, the message to inform that the system is in short of virtual memory may appear, but continue to start the system. If you restart the system in such case, memory dump may not be stored correctly.

Follow the procedure below to specify.

1. Select [Control Panel] and click [System].

   The [System Properties] dialog box appears.

2. Select [Advanced] tab.
3. Click [Settings] on the [Startup and Recovery] group box.

IMPORTANT:

Windows Server 2003 x64 Editions

- To specify "Complete Memory Dump" to write the debug information is recommended.
  If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 1MB".
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

Windows Server 2003

- To specify "Complete Memory Dump" to write the debug information is recommended.
  If the mounted memory size is larger than 2GB, "Complete Memory Dump" cannot be specified so that specify "Kernel Memory Dump" instead.
- Specify the drive where there is a free area more than the size of "the memory capacity mounted on Express server + 12MB"(In case the memory capacity is more than 2GB, a free area of "2048+12MB" or more).
- In case the mounted memory size exceeds 2GB due to the added memory, change the write debugging information to [Kernel Memory Dump] before adding memory. The size of debugging information (memory dump) to be taken also changes due to adding memory. Verify the size of the empty space in the debugging information (memory dump) write destination drive.

4. Specify "Complete memory dump" and modify [Dump file:] in the [Write debugging information] group box.

e.g. Write the debug information in D drive write the file name "MEMORY.DMP".
D:\MEMORY.DMP

5. Click [Settings] on the [Performance] group box.

   The [Performance Options] window appears.

6. Click [Advanced] tab on the [Performance Options] window.

7. Click [Change] on the [Virtual memory] group box.

8. Modify [Initial Size] in the [Paging file size for selected drive] box to the value larger than the value of [Recommended] in the [Total paging file size for all drives], and click [Set].

   IMPORTANT:

   - The above-mentioned paging file size is recommended for collecting debug information (memory dump). The paging file with initial size large enough to store the dump file in the boot drive is required. Correct debug information might not be able to be collected due to virtual memory shortage when the paging file is insufficient, so set an enough size of the paging file with the entire system.
   - For more information on "Recommended" value, see "About the System Partition Size" described earlier.
   - In case the memory is expanded, re-specify the paging file to suit the new memory size.

9. Click [OK].

   The message to restart the system may appear according to the modified specification. In such case, follow the message to restart the system.

How to Create a User-mode Process Dump File

When the system is Windows Server 2008

"User-mode Process Dump" is the file that records information when any application error occurs.

When any application error occurs, do not close the pop-up window that notifies the error, and then collect a dump using following process.

1. Right-click a blank part of the taskbar and click [Task Manager], or press Ctrl + Shift + Esc to start [Task Manager].
2. Click [Processes] tab.
3. Right-click on process name that you want to collect dump, and then click [Create Dump File].
4. The dump file is stored in following directory.

   C:\Users\<User Name>\AppData\Local\Temp

   NOTE: The folder may be treated as hidden folder. If the folder does not appear, run Explorer and select [Tools] - [Folder Options...] - [View], and check to [Show hidden files and folders].

   When the User-mode Process Dump is created, pick up the file from the directory described in Step 4.

   Refer to Knowledge Base of Microsoft web-site for more information about the User-mode Process Dump file collection.

   "How to create a user-mode process dump file in Windows Server 2008"

   http://support.microsoft.com/kb/949180/en-us

   NOTE: For Windows Server 2008, Dr. Watson is replaced by [Problem Reports and Solutions], therefore, you can not collect the Crash Dump file by existing Dr. Watson.

   The above process provides you the information same level as the Crash Dump file.

When the system is Windows Server 2003 (Dr.Watson)

Dr. Watson is a debugger for application errors. If any application error is detected, Dr. Watson diagnoses the server and logs diagnostic information (log). Follow the procedure below and specify Dr. Watson to collect diagnostic information.

1. Click [Run] on Start menu.
2. Type "drwtsn32.exe" in the [Open] box, and click [OK].

   The [Dr. Watson for Windows] dialog box appears.
3. Specify the location to store the diagnostic information in the [Log File Path] box.

   The diagnostic information will be stored with the file name "DRWTSN32.LOG".

   NOTE: You can not specify network pass. Specify the pass on local computer.
4. Specify the location of crash dump file in the [Crash Dump] box.

   NOTE: "Crash Dump File" is a binary file that can be read with Windows Debugger.
5. Check the following check box on the [Options] box.

   ☐ Dump Symbol Table
   ☐ Dump All Thread Contexts
   ☐ Append TO Existing Log File
   ☐ Create Crash Dump File

   For more information on each function above, refer to Online Help.
6. Click [OK].

Network Monitor

Utilizing Network Monitor helps you to investigate and manage with network trouble.

Network Monitor Setup (Windows Server 2008)

Microsoft Network Monitor allows you to examine and troubleshoot network problems.

> **NOTE:** Windows Server 2008 does not provide Network Monitor. To use Network Monitor on Windows Server 2008, install Network Monitor by following the steps below.

1. Download Microsoft Network Monitor from the following web site:
   http://support.microsoft.com/kb/933741/en-us
2. Run the downloaded file to start the installer.

   Follow the on-screen instructions to install Network Monitor.

   > **NOTE:** If a Security Alert appears, click [Run]. Select [Complete] for a setup format.

3. Network Monitor is installed.

   > **NOTE:** To remove Network Monitor, go to [Programs and Features].

Network Trace Capture (Windows Server 2008)

1. On the Start menu, start Microsoft Network Monitor.
2. On [Start Page], select [Create a new capture tab...] or select [New] in the [File] menu, and click [Capture...].

   A new tab for capturing a network trace is created.
3. On the [Select Networks] window, select a network you want to capture a trace.
4. On the [Capture] menu, click [Start] to start capturing a network trace.
5. On the [Capture] menu, click [Stop] to stop capturing a network trace.
6. On the [File] menu, select [Save As...].

   The [Save As] window appears. Select [All captured frames] from [Frame selection], and enter the names of a folder and a file.

   > **NOTE:** The default folder name is:
   > C:\Users\<User name>\Documents\Network Monitor 3\Captures

7. Click **Save** to create the file in the folder selected in step 6.

Network Monitor (Windows Server 2003)

To utilize Network Monitor, you need to restart the system after the installation has completed, so we recommend to install Network Monitor before any network trouble may occur.

1. Point to [Settings] from Start menu and click [Control Panel].

   The [Control Panel] dialog box appears.

2. Double-click [Add or Remove Programs].

   The [Add or Remove Programs] dialog box appears.

3. Click [Add/Remove Windows Component].

   The [Windows Components Wizard] dialog box appears.

4. Click [Management and Monitoring Tools] and then click [Details].

   The [Management and Monitoring Tools] dialog appears.

5. Click to select the [Network Monitor Tools] check box, and then click [OK].
6. The [Windows Components Wizard] dialog box appears again, so click [Next].
7. If the setup asks to install the disk, insert the OS CD-ROM into DVD-ROM drive and click [OK].
8. Click [Finish] in the [Windows Component Wizard] dialog box.
9. Close the [Add or Remove Programs] dialog box.
10. Close the [Control Panel] dialog box.

To start Network Monitor, point to [Program] → [Administrative Tools] and click [NetworkMonitor]. For information on how to operate Network Monitor, refer to Online Help.

Re-installing the Operation System if Multiple Logical Drives Exist

[Before Re-installing the Operation System]

Be sure to make backup copies before re-installing the operation system just in case.

[Re-installing the Operation System]

1. Start the clean installation following the procedure described in this manual.
2. Specify the partition in which you want to install the operating system when the following message appears:

   > The following list shows the existing partitions and
   > unpartitioned space on this computer.
   >
   > Use the UP and DOWN ARROW keys to select an item in the list.

   * Cannot modify the drive letter of your system or boot volume. Confirm the proper drive letter is assigned and then, continue the setup.
3. Continue the clean installation again following the procedure described in this manual.
4. The drive letter of the re-installed system may differ from the one of the previous system. If you need to modify the drive letter, modify it according to the "Procedure for Modifying the Drive Letter".

[Procedure for Modifying the Drive Letter]

Be careful that the drive letter of the system or boot volume cannot modify with the following procedure.

1. Click Start menu, right-click [My Computer], and specify [Manage] to start [Computer Management].
2. Specify the [Disk Management] in the left side of the window.
3. Right-click the volume you want to modify the drive letter and specify the [Change Drive Letter and Path...].
4. Click [Yes].
5. Choose the [Assign a drive letter] and specify the drive letter you want to assign.
6. Click [OK].
7. If the following message appears, click [Yes].

> Changing the drive letter of a volume may cause programs to no longer run. Are you sure you want to change this drive letter?

8. Close the [Computer Management].

UPDATING THE SYSTEM - APPLYING SERVICE PACK -

Update the system in the situation below:

- CPU is expanded (expanded to single processor to multi-processor).
- Modified system configuration.
- Recovered the system using recovery process.

The system update brings the correction program provided by Microsoft to be applied to reinforce the system security. The system update is recommended.

It is necessary to use Service Pack2 or more. Service Pack 2 need not be applied again when Windows Server 2003 x64 Editions/ Windows Server 2003 CD-ROM where Service Pack 2 is included is used and it is installed.

If you install Windows Server 2003 CD-ROM which contains Service Pack 2, you do not have to apply "Hotfix for Windows x64" or "Hotfix for Windows Server 2003(KB921411)".

Go on the section of "Updating the System".

Local Update

When the system is Windows Server 2008

"Updating the System" applies the drivers necessary for NEC Express5800 Series.

1. Log on to the system using an administrator account.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disk drive.
3. Hereinafter, the setup process is depending on the content selected at [Installing Windows Server 2008], follow each of the instructions.
   - If you have selected a full installation

     If the menu is displayed, click [Setup Windows] and click [Update the system].

     NOTE: Right-clicking on the Menu produces the same outcome.

   - If you have selected a Server Core installation

     1) Execute the following command line from command prompt to specify the optical disk drive (e.g. D drive).

        cd /d d:\002\win\winnt\bin\oschk\

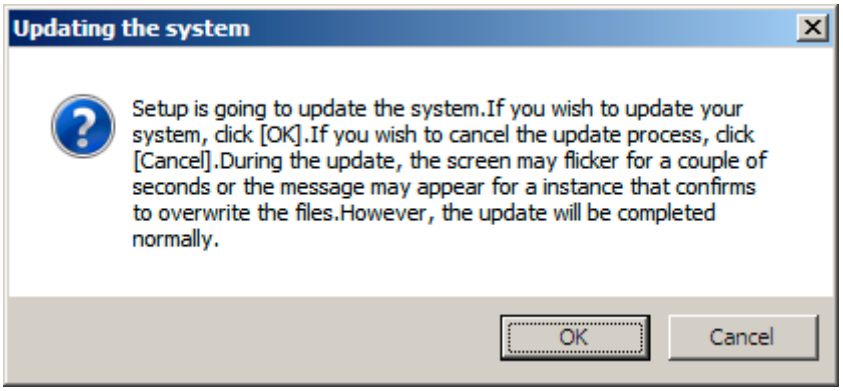
        ```
        C:\Users\administrator>cd /d D:\002\win\winnt\bin\oschk
        ```

     2) Type following command line and press **Enter**.

        oschk.bat

        ```
        D:\002\win\winnt\bin\oschk>oschk.bat
        ```

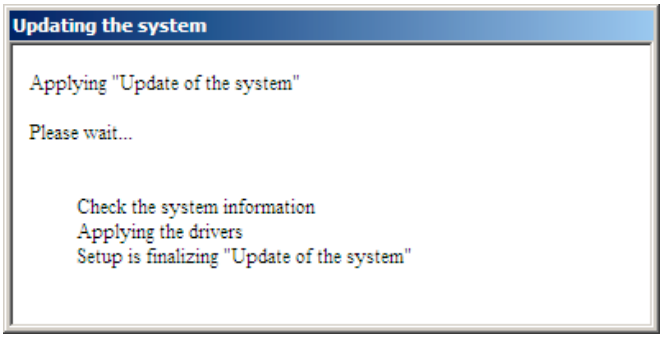
4. The following box appears.


Updating the system
Setup is going to update the system.If you wish to update your system, click [OK].If you wish to cancel the update process, click [Cancel].During the update, the screen may flicker for a couple of seconds or the message may appear for a instance that confirms to overwrite the files.However, the update will be completed normally.
OK
Cancel

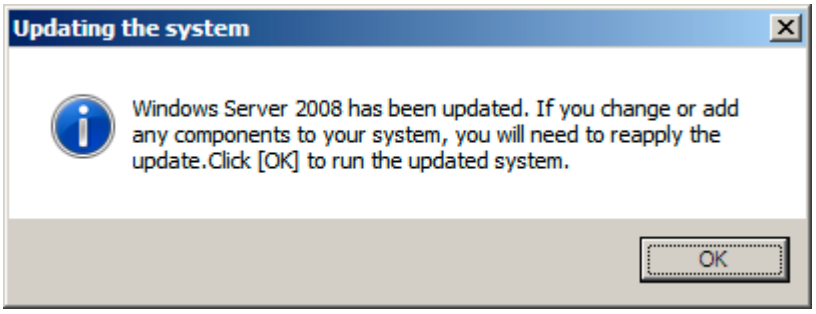
5. Read the message, and then click [OK].

The update starts.

NOTE: The following box appears during the update if you have deployed a full installation of Windows Server 2008. Wait until the update completes.


Updating the system
Applying "Update of the system"
Please wait...
Check the system information
Applying the drivers
Setup is finalizing "Update of the system"

6. When the following message appears, click [OK] to restart the system.


Updating the system
Windows Server 2008 has been updated. If you change or add any components to your system, you will need to reapply the update.Click [OK] to run the updated system.
OK

The system has been updated.

When the system is Windows Server 2003 x64 Editions / Windows Server 2003

Perform "Updating the System" and application of the "Hotfix (KB921411)".

IMPORTANT: In the situation below, make sure to apply "Updating the System" and "Hotfix (KB921411)".

- Modified system configuration
- Recovered the system using recovery process.

NOTE: If you use Windows Server 2003 x64 Editions / Windows Server 2003 CD-ROM which includes Service Pack 2, the application of "Hotfix (KB921411)" is not required.

Application process of the Hotfix (KB921411)

Apply the "Hotfix (KB921411)" before execute "Updating the System".

1. Log on to the system by the account with administrator authority to the CPU blade (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the server.
3. Click Start menu and [Run], and then execute the following command.

   <When Windows Server 2003 x64 Editions is used>

   <DVD-ROM Drive Letter>: \002\win\winnt\w2k3amd\qfe\enu\kb921411.exe

   <When the English version of Windows Server 2003 R2 is used>

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\enu\kb921411.exe

   <When the Simplified Chinese version of Windows Server 2003 R2 is used>

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\chs\kb921411.exe

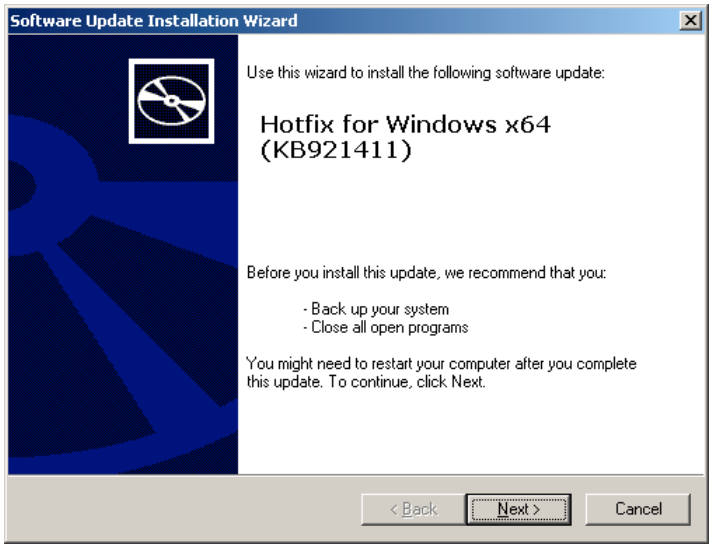
   <When the French version of Windows Server 2003 R2 is used>

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\fra\kb921411.exe

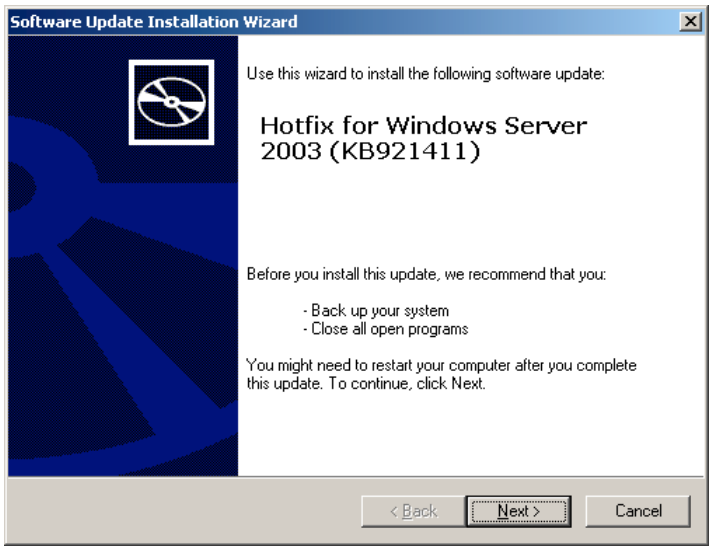
4. When the following message is displayed, click [Next].

After that, follow the message to continue the process.

<Windows Server 2003 x64 Editions>

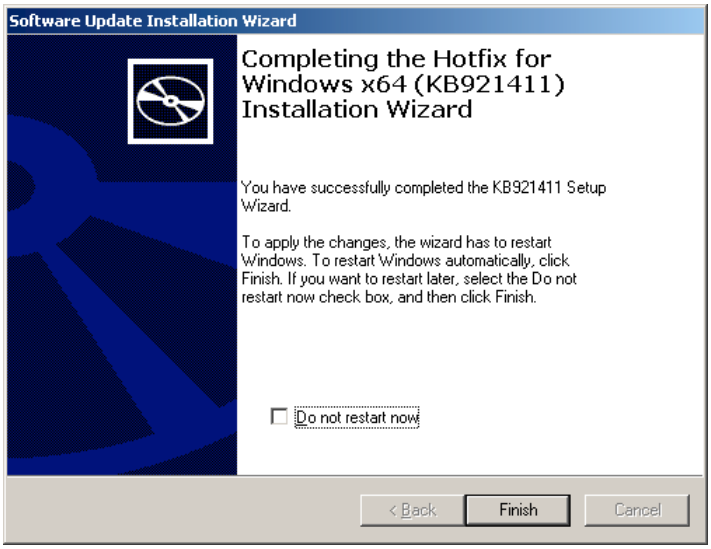

Software Update Installation Wizard
Use this wizard to install the following software update:
Hotfix for Windows x64 (KB921411)
Before you install this update, we recommend that you:
- Back up your system
- Close all open programs
You might need to restart your computer after you complete this update. To continue, click Next.
< Back
Next >
Cancel

<Windows Server 2003>

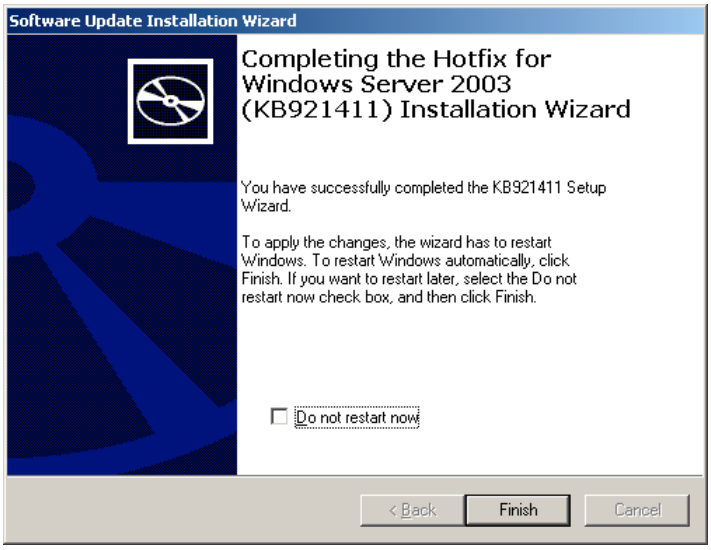

Software Update Installation Wizard
Use this wizard to install the following software update:
Hotfix for Windows Server 2003 (KB921411)
Before you install this update, we recommend that you:
- Back up your system
- Close all open programs
You might need to restart your computer after you complete this update. To continue, click Next.
< Back
Next >
Cancel

5. When the following message is displayed, make sure to click [Finish] to restart the system

<Windows Server 2003 x64 Editions>


Software Update Installation Wizard
Completing the Hotfix for Windows x64 (KB921411) Installation Wizard
You have successfully completed the KB921411 Setup Wizard.
To apply the changes, the wizard has to restart Windows. To restart Windows automatically, click Finish. If you want to restart later, select the Do not restart now check box, and then click Finish.
Do not restart now
< Back
Finish
Cancel

<Windows Server 2003>


Software Update Installation Wizard
Completing the Hotfix for Windows Server 2003 (KB921411) Installation Wizard
You have successfully completed the KB921411 Setup Wizard.
To apply the changes, the wizard has to restart Windows. To restart Windows automatically, click Finish. If you want to restart later, select the Do not restart now check box, and then click Finish.
Do not restart now
< Back
Finish
Cancel

With that, application process of the Hotfix (KB921411) is finished.

Application process of "Updating the System"

"Updating the System" applies the drivers necessary for NEC Express5800 Series.

Follow this process after Hotfix for Windows x64 (KB921411) or Hotfix for Windows Server 2003 (KB921411) had been applied.

> **NOTE:** If you install Windows CD-ROM that contains Service Pack 2 to your system, you do not have to apply Service pack 2 again.

1. Log on to the system with the account that has administrative privilege (e.g. administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of server.

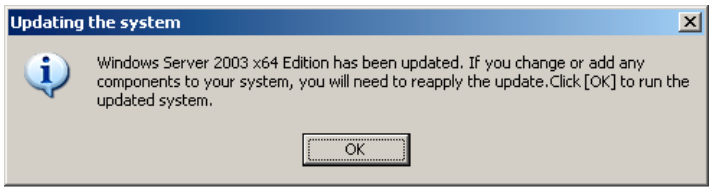
   The Menu will be displayed
3. Left-click on [Setup Windows], and then click [Update the system].

   > **NOTE:** Right-clicking on the Menu produces the same outcome.

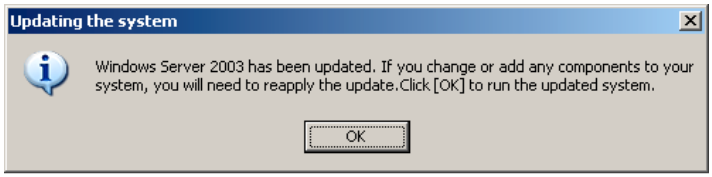
   Follow the message of the screen to proceed the application.

   [OK] dialog box will be displayed.

   <Windows Server 2003 x64 Editions>


Updating the system
Windows Server 2003 x64 Edition has been updated. If you change or add any components to your system, you will need to reapply the update.Click [OK] to run the updated system.
OK

<Windows Server 2003>


Updating the system
Windows Server 2003 has been updated. If you change or add any components to your system, you will need to reapply the update.Click [OK] to run the updated system.
OK

IMPORTANT: During the "Updating the System", the following message may be shown, but there is no impact to the operation.

Do not click [cancel] since it may be taken away after a few seconds

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

4. Click [OK] to restart the system.
5. When the reboot is started, remove the NEC EXPRESSBUILDER DVD from the USB DVD-ROM drive immediately.

Recovery process

If "Updating the System" is executed before the application of the "Hotfix for Windows x64 (KB921411)" or "Hotfix for Windows Server 2003 (KB921411)", "!" may be displayed on the USB root hub.

If "!" is displayed on the USB root hub, perform application of the "Hotfix for Windows x64 (KB921411)" or "Hotfix for Windows Server 2003 (KB921411)" and the "Updating the System" according to the following process.

1. Start the Windows Explorer, and click [Tools] and [Folder Options].
2. Select [Files and Folders] - [Hidden files and folders] - [Show hidden files and folders] radio button from Advanced settings in the [View] tab.
3. Check off the following check box in the [Files and Folders] from Advanced settings in the [View] tab, and then click [OK].

   ☐ Hide extensions for know file type

   ☐ Hide protected operating system files [Recommended]

   When the message "You have chosen to display protected operating system files..." is displayed, click [Yes].
4. Make sure of the files.

   Open "<System drive:>\WINDOWS\system32\drivers" directory, and make sure usbhub.sys and usbport.sys are exists in the directory.

   If you can not found them, copy the files according to the following process.

   (1) Open "<System drive:>\WINDOWS\system32\dllcache" directory.

   (2) Copy usbhub.sys and usbport.sys from the directory noted above to "<System drive:>\WINDOWS\system32\drivers".
5. Restart the system.
6. Refer to [Application process of the Hotfix (KB921411)] and apply the "Hotfix for Windows x64 (KB921411)" or "Hotfix for Windows Server 2003 (KB921411)".
7. Refer to [Application process of "Updating the System"] and execute "Updating the System".
8. Restart the system.

With that, process is finished.

Update from TS Client (Windows Server 2008)

Updating the System

IMPORTANT: Make sure that the TS client DVD-ROM is assigned to a network driver to be shared. If not, assign the TS client to make it shared.

1. Log on to the system by the account with administrator authority to TS client (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the TS client.

   If the menu appears on the TS client screen, terminate the menu.
3. <Windows Server 2008 64-bit(x64) Edition>

   Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client: \002\win\winnt\ws2008x64\update.vbs" on the [Open] box, and click [OK].

   <Windows Server 2008 32-bit(x86) Edition>

   Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client: \002\win\winnt\ws2008\update.vbs" on the [Open] box, and click [OK].

   Then advance the processing depending on the messages appearing on the TS client screen.

   If the following screen appears, click [Close].

IMPORTANT: Perform the re-connection to the CPU blade after about five minutes have passed. While the system update is applied, the terminal service connection is automatically disconnected and the CPU blade is restarted.

Update from TS Client (Windows Server 2003 x64 Editions)

> **NOTE:** Configure the setting for remote desktop for management referring to the section of"Remote desktop for management" before starting the setup.

Perform "Updating the System" and application of the "Hotfix for Windows x64 (KB921411)"

Application process of the Hotfix for Windows x64 (KB921411)

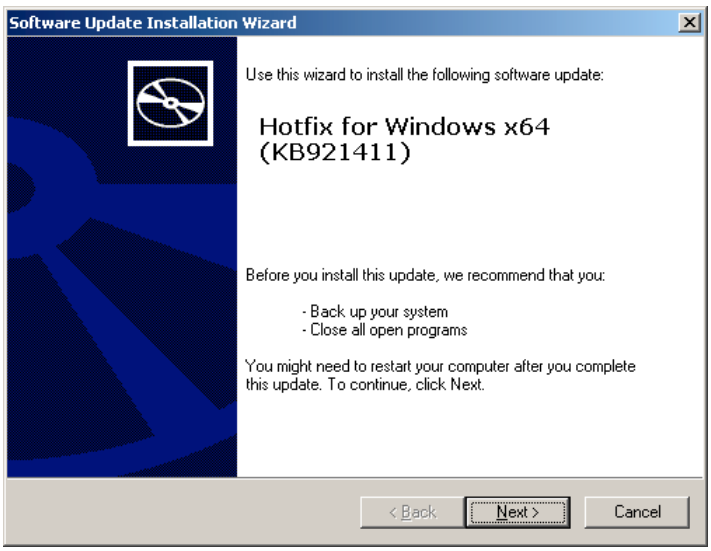
Apply the "Hotfix for Windows x64(KB921411)" before execute "Updating the System".

1. Log on to the system by the account with administrator authority to TS client (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the TS Client.

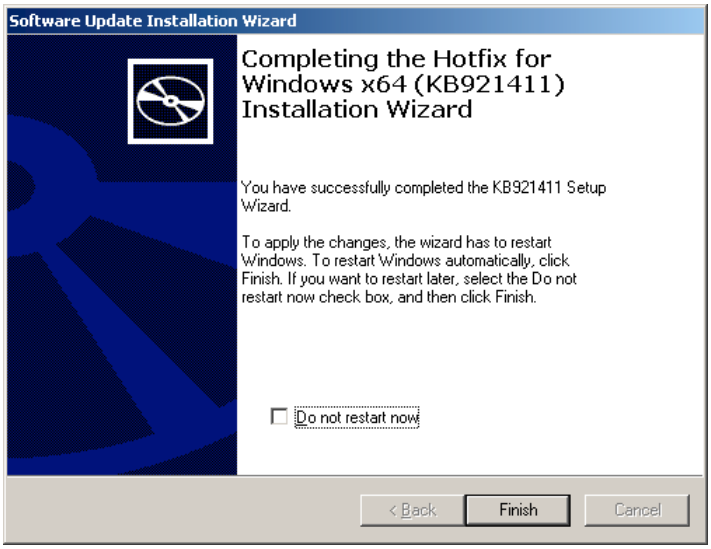
   If the menu appears on the TS client screen, terminate the menu.
3. Click Start menu and [Run], and then execute the following command.

   <DVD-ROM Drive Letter>: \002\win\winnt\w2k3amd\qfe\enu\kb921411.exe
4. When the following message is displayed, click [Next].

   After that, follow the message to continue the process.


Software Update Installation Wizard
Use this wizard to install the following software update:
Hotfix for Windows x64 (KB921411)
Before you install this update, we recommend that you:
- Back up your system
- Close all open programs
You might need to restart your computer after you complete this update. To continue, click Next.
< Back
Next >
Cancel

5. When the following message is displayed, make sure to click [Finish] to restart the system.


Software Update Installation Wizard
Completing the Hotfix for Windows x64 (KB921411) Installation Wizard
You have successfully completed the KB921411 Setup Wizard.
To apply the changes, the wizard has to restart Windows. To restart Windows automatically, click Finish. If you want to restart later, select the Do not restart now check box, and then click Finish.
Do not restart now
< Back
Finish
Cancel

With that, application process of the Hotfix for Windows x64 (KB921411) is finished.

Updating the System

IMPORTANT: Make sure that the TS client DVD-ROM is assigned to a network driver to be shared. If not, assign the TS client to make it shared.

1. Log on to the system by the account with administrator authority to TS client (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the TS client.

   If the menu appears on the TS client screen, terminate the menu.
3. Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client:\002\win\winnt\w2k3amd\update.vbs" on the [Open] box, and click [OK].

   Then advance the processing depending on the messages appearing on the TS client screen.

   If the following screen appears, click [Close].

IMPORTANT: Perform the re-connection to the CPU blade after about five minutes have passed. While the system update is applied, the terminal service connection is automatically disconnected and the CPU blade is restarted.

Update from TS Client (Windows Server 2003)

> **NOTE:** Configure the setting for remote desktop for management referring to the section of "Remote desktop for management" before starting the setup.

Perform "Updating the System" and application of the "Hotfix for Windows (KB921411)".

Application process of the Hotfix for Windows Server 2003 (KB921411)

Apply the "Hotfix for Windows Server 2003 (KB921411)" before execute "Updating the System".

1. Log on to the system by the account with administrator authority to TS client (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the TS Client.

   If the menu appears on the TS client screen, terminate the menu.
3. Click Start menu and [Run], and then execute the following command.

   When the English version of Windows Server 2003 R2 is used

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\enu\kb921411.exe

   When the Simplified Chinese version of Windows Server 2003 R2 is used

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\chs\kb921411.exe

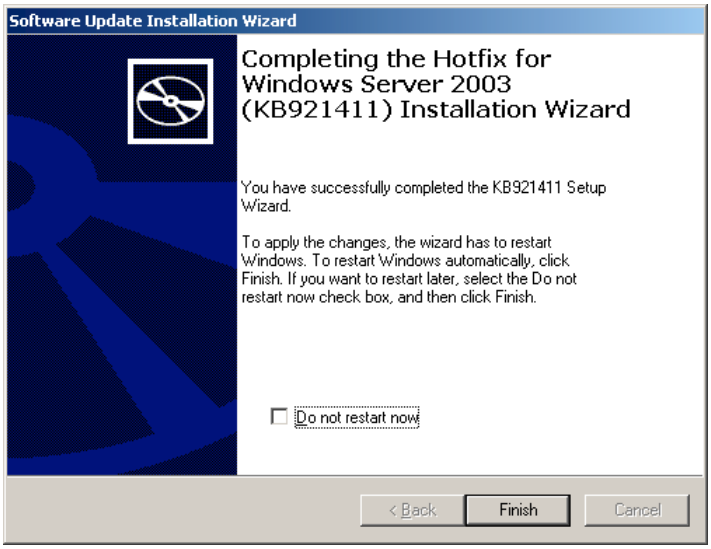
   When the French version of Windows Server 2003 R2 is used

   <DVD-ROM Drive Letter>: \002\win\winnt\dotnet\qfe\fra\kb921411.exe
4. When the following message is displayed, click [Next].

   After that, follow the message to continue the process.

Software Update Installation Wizard
Use this wizard to install the following software update:
Hotfix for Windows Server 2003 (KB921411)
Before you install this update, we recommend that you:
- Back up your system
- Close all open programs
You might need to restart your computer after you complete this update. To continue, click Next.
< Back
Next >
Cancel

5. When the following message is displayed, make sure to click [Finish] to restart the system.


Software Update Installation Wizard
Completing the Hotfix for Windows Server 2003 (KB921411) Installation Wizard
You have successfully completed the KB921411 Setup Wizard.
To apply the changes, the wizard has to restart Windows. To restart Windows automatically, click Finish. If you want to restart later, select the Do not restart now check box, and then click Finish.
Do not restart now
< Back
Finish
Cancel

With that, application process of the Hotfix for Windows Server 2003 (KB921411) is finished.

Updating the System

IMPORTANT: Make sure that the TS client CD-ROM is assigned to a network driver to be shared. If not, assign the TS client to make it shared.

1. Log on to the system by the account with administrator authority to TS client (such as administrator).
2. Insert the NEC EXPRESSBUILDER DVD into the USB DVD-ROM drive of the TS client.

   If the menu appears on the TS client screen, terminate the menu.
3. Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client:\002\win\winnt\dotnet\update.vbs" on the [Open] box, and click [OK].

   Then advance the processing depending on the messages appearing on the TS client screen.

   If the following screen appears, click [Close].

IMPORTANT:

- Perform the re-connection to the CPU blade after about five minutes have passed. While the system update is applied, the terminal service connection is automatically disconnected and the CPU blade is restarted.
- During the "Updating the System", the following message may be shown, but there is no impact to the operation.
  Do not click [cancel] since it may be taken away after a few seconds

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

About Windows Activation

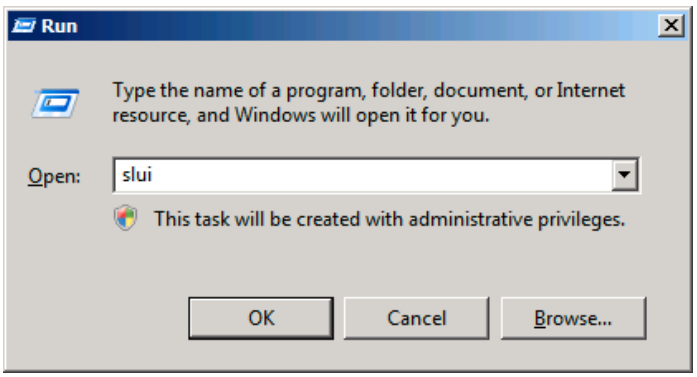
You have to agree to the license agreement to use Windows Server 2008, Windows Server 2003 x64 Edition or Windows Server 2003.

Windows activation process is as follows.

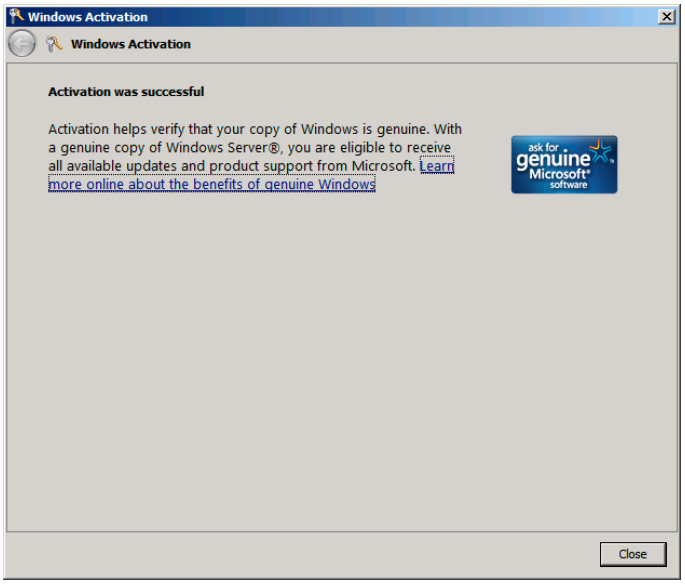
Windows Server 2008

For a server running a full installation

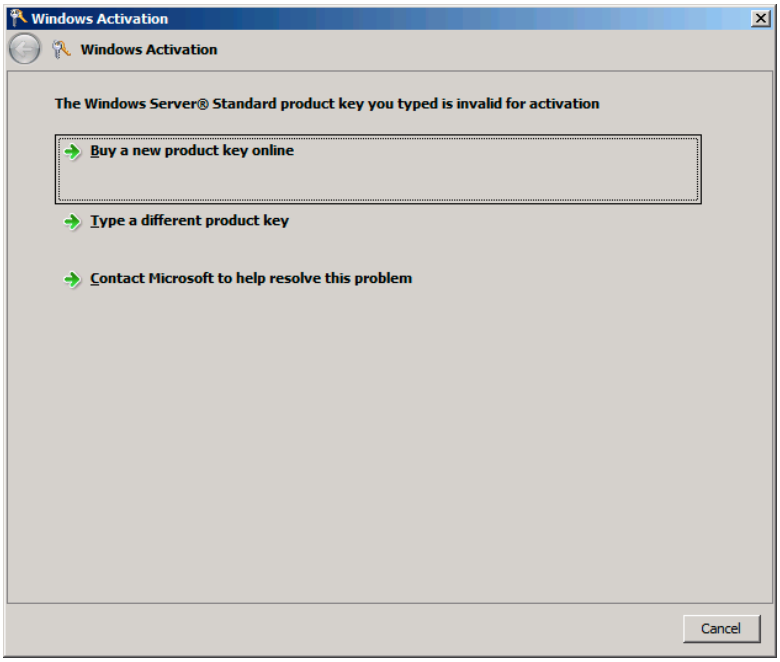
1. Go to the Start menu, and in the Run dialog box, type **slui**, and press **Enter**.


Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
slui
This task will be created with administrative privileges.
OK
Cancel
Browse...

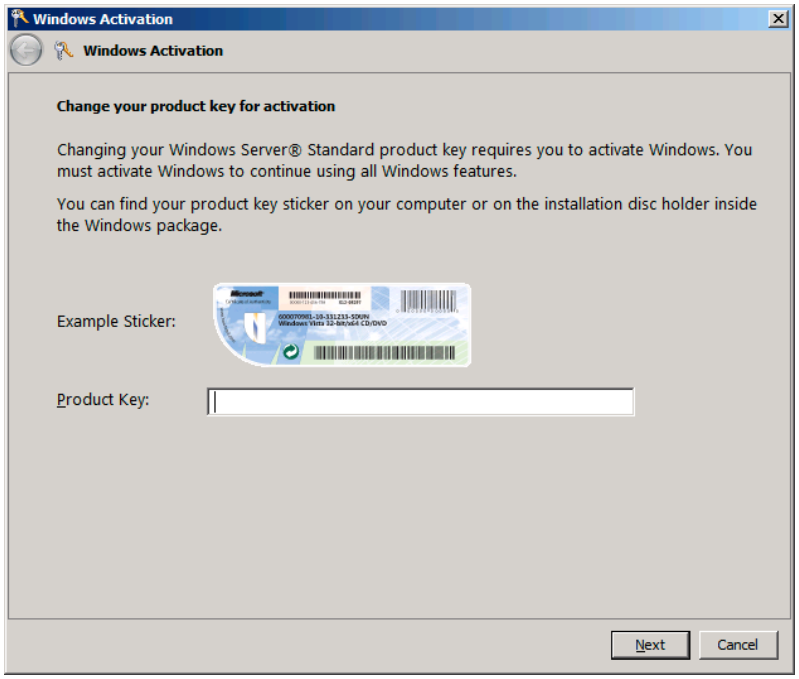
IMPORTANT: If the following message appears, Windows has already been activated on your system. Click [Close] to exit.


Windows Activation
Windows Activation
Activation was successful
Activation helps verify that your copy of Windows is genuine. With a genuine copy of Windows Server®, you are eligible to receive all available updates and product support from Microsoft. Learn more online about the benefits of genuine Windows
ask for genuine Microsoft software
Close

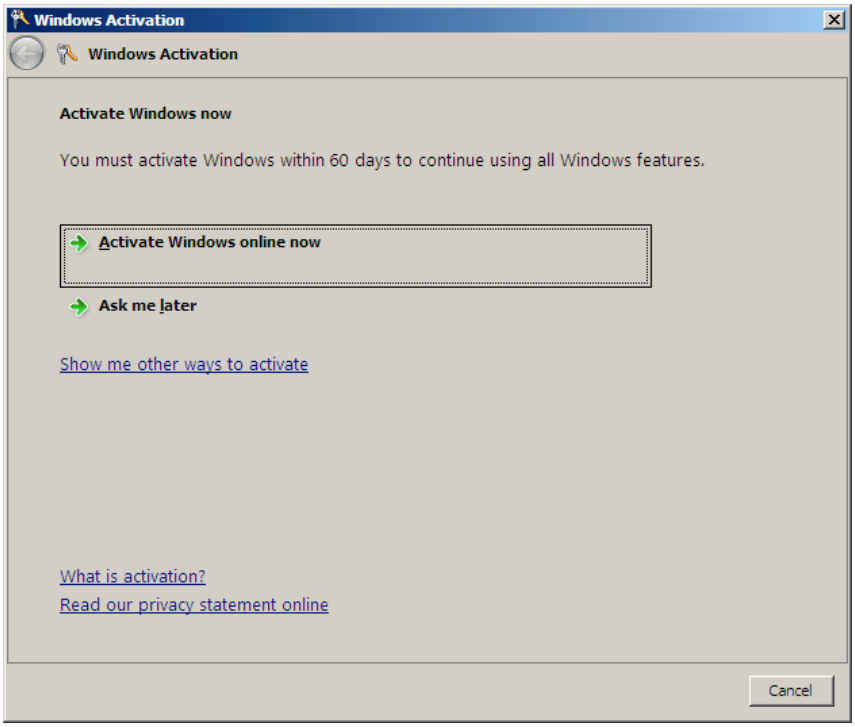
2. In the following screen, click [Type a different product key].


Windows Activation
Windows Activation
The Windows Server® Standard product key you typed is invalid for activation
Buy a new product key online
Type a different product key
Contact Microsoft to help resolve this problem
Cancel

3. Type the product key shown on your COA label, and click [Next].


Windows Activation
Windows Activation
Change your product key for activation
Changing your Windows Server® Standard product key requires you to activate Windows. You must activate Windows to continue using all Windows features.
You can find your product key sticker on your computer or on the installation disc holder inside the Windows package.
Example Sticker:
Product Key:
Next
Cancel

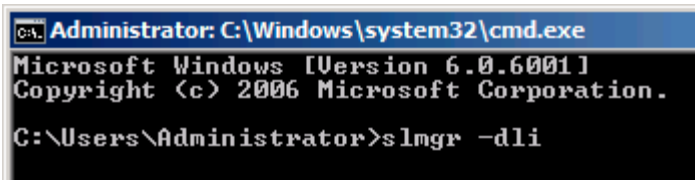
4. Activate Windows.


Windows Activation
Windows Activation
Activate Windows now
You must activate Windows within 60 days to continue using all Windows features.
Activate Windows online now
Ask me later
Show me other ways to activate
What is activation?
Read our privacy statement online
Cancel

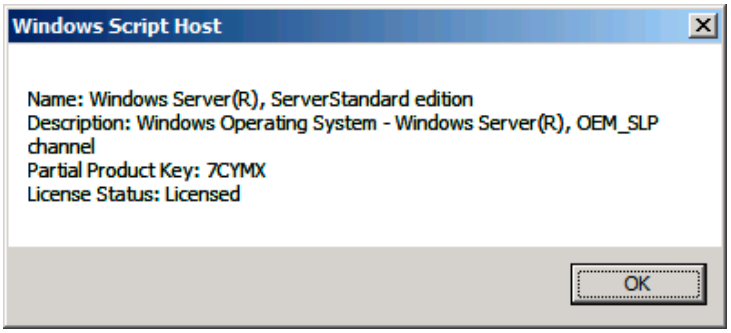
The Windows activation is complete.

For a server running a Server Core installation

1. At the command prompt, type **Slmgr –dli**, and press **Enter**.

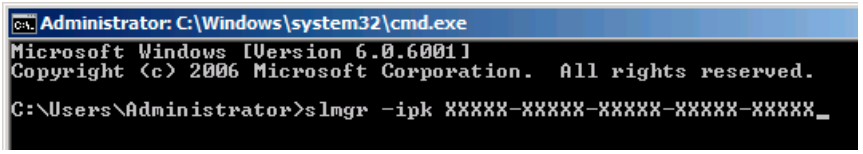


IMPORTANT: If the following message appears, Windows has already been activated on your system. Click ✕ to exit.

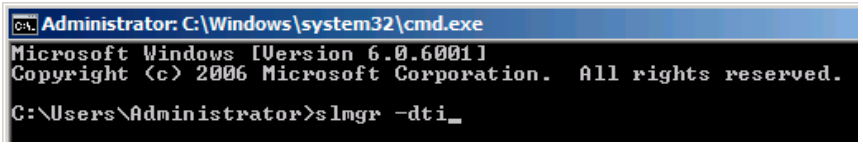

Windows Script Host
Name: Windows Server(R), ServerStandard edition
Description: Windows Operating System - Windows Server(R), OEM_SLP channel
Partial Product Key: 7CYMX
License Status: Licensed
OK

2. Type **slmgr –ipk <PID>**, and press **Enter**.

   * PID is your product key on the COA label.


Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>slmgr -ipk XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

3. Type **slmgr –dti** to obtain an installation ID for Windows activation, and press **Enter**.

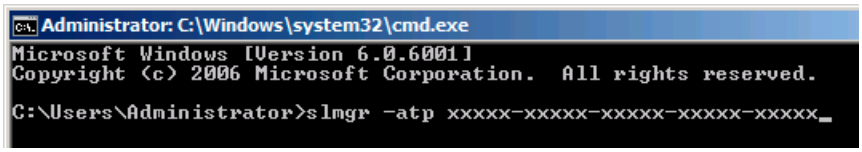

Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>slmgr -dti

4. See "%systemroot%\system32\slui\phone.inf" for the phone number of the Microsoft customer service.

5. Call the above number, inform the representative of the installation ID which you obtained in step 3, and receive a confirmation ID.

6. At the command prompt, type **slmgr –atp <CID>**, and press Enter.

* CID is the confirmation ID that you received from the call center.


Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>slmgr -atp xxxxx-xxxxx-xxxxx-xxxxx-xxxxx

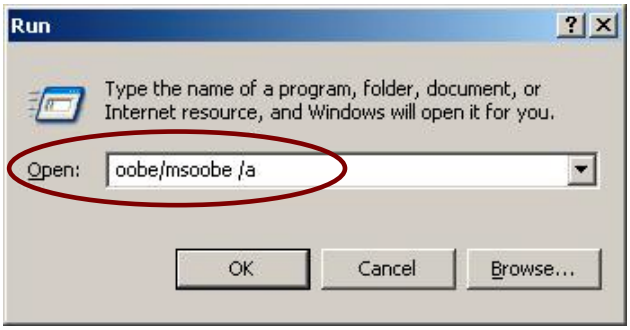
The Windows activation is complete.

Windows Server 2003 x64 Editions / Windows Server 2003

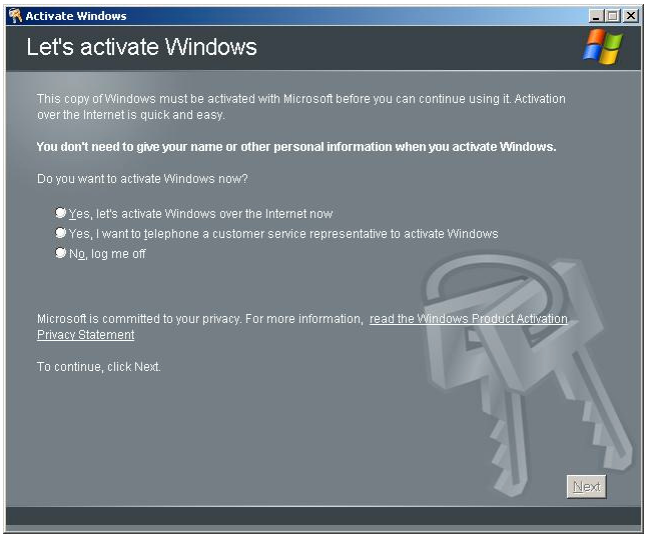
1. Click [Run] on [Start] menu.

Type as follows in the [Open:] box, and click [OK].

oobe/msoobe /a

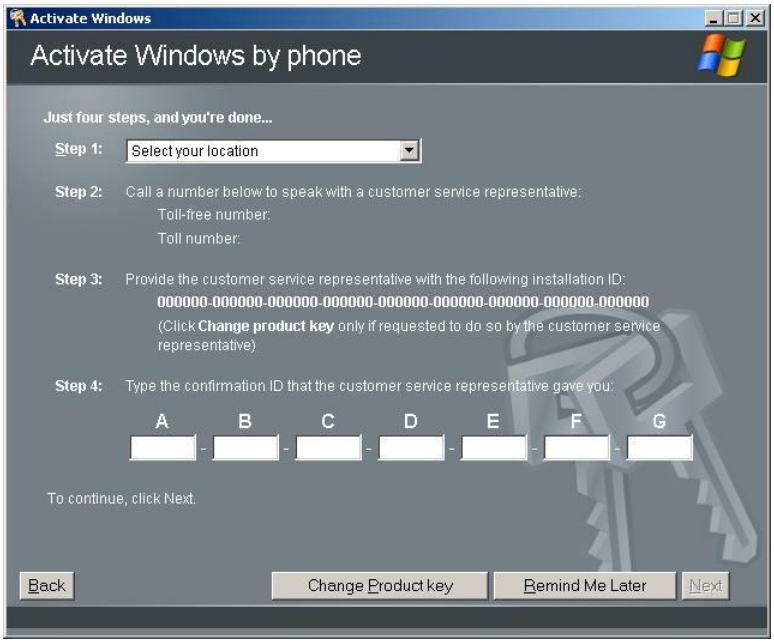


2. When the screen as follows is displayed, click [Next].


Activate Windows
Let's activate Windows
This copy of Windows must be activated with Microsoft before you can continue using it. Activation over the Internet is quick and easy.
You don't need to give your name or other personal information when you activate Windows.
Do you want to activate Windows now?
Yes, let's activate Windows over the Internet now
Yes, I want to telephone a customer service representative to activate Windows
No, log me off
Microsoft is committed to your privacy. For more information, read the Windows Product Activation Privacy Statement
To continue, click Next.
Next

The following screen is displayed.

3. Process "Windows activation" according to the following message.



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